

Sydney Water Corporation Operational Audit 2013/14

Report to the Minister

Water — Compliance Report
December 2014

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1 Executive summary

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) has completed the audit of Sydney Water Corporation's (SWC) compliance with the requirements of its 2010-2015 operating licence (the licence). This audit covers the period from 1 July 2013 to 30 June 2014.

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

Further, in determining the scope of the audit we consult with the NSW Ministry of Health (NSW Health) and seek public submissions. This year, no public submissions were received. NSW Health identified two matters, which are discussed in the Water quality and Infrastructure performance sections below. We also engaged a specialist auditing firm (GHD) to assist with the 2013/14 operational audit.

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

Overview of audit findings

This year Sydney Water demonstrated a high level of compliance with its operating licence. IPART has awarded Full Compliance to 19 of the 22 clauses audited and High Compliance for the remaining three clauses audited. This differs from the grades awarded by the auditor engaged to assist us in the audit (see sections 3.2.1 and 3.6 of this report for details). In summary, the audit found that Sydney Water achieved:

- ▼ **High to Full Compliance** with requirements relating to water quality.
- ▼ **High to Full Compliance** with requirements relating to infrastructure performance.

- ▼ **Full Compliance** with requirements relating to customer and consumer rights.
- ▼ **Full Compliance** with requirements relating to environment indicators and management.
- ▼ **Full Compliance** with requirements relating to water conservation.
- ▼ **High Compliance** with requirements relating to reporting and maintaining records.
- ▼ **Full Compliance** with requirements relating to request for information and access.
- ▼ **Full Compliance** with requirements relating to memoranda of understanding.

Table 1.1 Sydney Water's compliance in 2013-14, the fourth year of its 2010-15 operating licence

Licence part	Number of audited clauses	Compliance grade awarded		
		Full	High	Adequate
Chapter 1 – Licence and Licence authorisation	0	-	-	-
Chapter 2 – Water quality	2	1	1	-
Chapter 3 – Infrastructure performance	8	7	1	-
Chapter 4 – Customer and consumer rights	2	2	-	-
Chapter 5 – Complaint and dispute Handling	0	-	-	-
Chapter 6 – Environment indicators and management	2	2	-	-
Chapter 7 – Water conservation	5	5	-	-
Chapter 8 – Compliance audits of the licence	0	-	-	-
Chapter 9 – Reporting and maintaining records	1	-	1	-
Chapter 10 – Request for information and access	1	1	-	-
Chapter 11 – Memoranda of understanding	1	1	-	-
Total	22	19	3	-

Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014, as amended by IPART (see sections 3.2 and 3.6 of this report).

Annual statement of compliance

In preparing this report we have also reviewed Sydney Water's annual Statement of Compliance (Appendix D). This is an exception based report certified by the Managing Director of Sydney Water and the Chairman of the Sydney Water Board. It lists any licence breaches that occurred during the year. Further, any

remedial action taken, or in the process of being taken, is reported. This year Sydney Water reported no breaches of its operating licence. However, on 13 November 2014, Sydney Water contacted IPART to identify a miscalculation and that it had been under-reporting against the water continuity standards. Although Sydney Water did not breach the standards, it effectively has breached its reporting obligation under clause 9 of its licence. For further discussion on this issue, see section 3.6 of this report.

Our recommendations

The auditor prepared a final audit report detailing its findings and recommendations (Appendix C). There was one clause for which the auditor did not award Full compliance. We have made three recommendations based on the auditor's recommendations. We have made an additional three recommendations based on our own observations of the audit, which underpinned our decision not to award Full Compliance for these two clauses. The recommendations are outlined below (where we also indicate which clause in the operating licence each recommendation relates to).

Recommendations based on auditor recommendations

- 1 Sydney Water should maintain an ongoing commitment to the review and update of its Recycled Water Quality Management Plans via the four-year rolling program agreed with NSW Health.

Further, Sydney Water should be able to demonstrate progress with its program in both documentation development and scheme specific implementation by 30 June 2015. Formal endorsement of the Liverpool plan by NSW Health should also be achieved by 30 June 2015. (Clause 2.2 – Recycled water)
- 2 Sydney Water should update site inspection checklists for water recycling schemes to include the names and contact details of the inspector and 'inspectee', and note the date and conditions during the inspection. Sydney Water should demonstrate that a number of schemes have been audited and field verified during 2014/15. (Clause 2.2 – Recycled Water)
- 3 Sydney Water should undertake a site verification audit of the Recycled Water Quality Management Plan for the Stonecutters Ridge scheme during 2014/15. (Clause 2.2 – Recycled Water)

Recommendations based on our decision not to award Full Compliance for two clauses:

- 4 Sydney Water should ensure that document control is implemented across the organisation for all key documents relating to its services and activities covered by the operating licence. Key knowledge processes and practices should be documented, controlled and endorsed with appropriate signoff.

Sydney Water should demonstrate that information in controlled documents retains currency by implementing regular reviews in accordance with its risk

based document control review schedules. By 30 June 2015, Sydney Water should establish a review schedule to ensure that all controlled documents are brought up to date according to the risk level of the document. (Clause 3.1.2(e) – Asset management framework)

- 5 By 30 June 2015, Sydney Water should review its incident and scenario close out procedures and documentation relating to services and activities covered by the operating licence, to ensure appropriate and timely close out of actions are implemented. (Clause 3.1.2(e) – Asset management framework)
- 6 By 30 June 2015, Sydney Water should review its QA processes to ensure that data reported to regulatory bodies is accurate and meets the assigned definitions. (Clause 9(a) – Reporting and maintaining records)

Subject to your endorsement of these recommendations, we will request Sydney Water provide a progress report to us by 31 March 2015.

Finally, we note that Sydney Water has not closed out all outstanding recommendations from previous operating audits.

The previous recommendation relating to ensuring compliance of customers' recycled water schemes with their contracts by inspections has progressed, although not to the point that it can be closed out. Inspections are planned for this summer (2014/15), when water usage is typically higher. We expect to be able to close this recommendation in the next audit, where we will recheck progress.

2 Introduction and scope

Sydney Water is a State Owned Corporation (SCO) owned by the NSW State Government. Sydney Water's principal function is to provide, construct, operate, manage and maintain efficient, coordinated and commercially viable systems for providing water, sewerage and stormwater services within its area of operations in Sydney, Illawarra and the Blue Mountains. These roles and responsibilities, as well as Sydney Water's objectives, are prescribed by the *Sydney Water Act 1994* (Act) and the licence issued to Sydney Water under part 5, section 12 of the Act.

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

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

2.1 Purpose and structure of this report

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

- ▼ This chapter (Chapter 2) explains the scope of the audit review and the process followed in undertaking the audit
- ▼ Chapter 3 presents a summary of the audit findings and recommendations
- ▼ Chapter 4 summarises the progress by Sydney Water to address and implement recommendations from previous audits
- ▼ Appendix A contains the table of compliance grades used for this audit
- ▼ Appendix B contains the audit scope

- ▼ Appendix C provides the auditor's detailed audit report
- ▼ Appendix D provides Sydney Water's annual statement of compliance.

2.2 Audit scope

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

The audit scope for this year included obligations relating to:

- ▼ Water Quality
- ▼ Infrastructure performance
- ▼ Customer and consumer rights
- ▼ Environment indicators and management
- ▼ Water conservation
- ▼ Reporting and maintaining records
- ▼ Request for information and access
- ▼ Memoranda of understanding.

Prior to the audit, Sydney Water provided a statement of compliance certified by the Managing Director and the Chairman of the Sydney Water Board (Appendix D of this report). This statement reports that Sydney Water has fully complied with its licence in 2013/14 (including the clauses subsequently audited this year). As a result, no changes to the audit scope were made. However, subsequent reporting errors by Sydney Water have led to us making a further audit recommendation (see section 3.6 of this report for further details).

2.3 The audit process

We engaged GHD Pty Ltd (GHD) to assist with the 2013/14 audit of Sydney Water. The auditor was required to undertake the following tasks:

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

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

As part of the audit process, we sought submissions from the public on any matter related to the operating licence prior to the commencement of the audit interviews. We advertised for public submissions in the Sydney Morning Herald and The Daily Telegraph on 9 July 2014. No submissions from the public were received.

GHD contacted NSW Health prior to the audit interview to seek its views on compliance and any other areas, which should be reviewed as part of this audit. Although NSW Health did not raise any concerns, it advised of two public health incidents that had occurred during the audit period and a joint planning exercise that was conducted between Sydney Water, Sydney Catchment Authority and NSW Health. These are discussed in the water quality section and the asset management sections below (refer also to Appendix C for more details).

The auditor adopted an audit methodology that was consistent with the following standards:

- ▼ Australian Auditing Standard ISO 19011:2011 – Guidelines for Auditing Management Systems
- ▼ Australian Standard ISO 14011 – Guidelines for Environmental Auditing.

The guidelines contained in the above standards set out a systematic approach to defining the requirements of an audit, ensuring that it is conducted in accordance with an established and recognised audit protocol.

The auditor also carried out the audit according to our Audit Guideline for Public Water Utilities.¹ Under this guideline, auditors can either make **recommendations** or suggest **opportunities for improvement**. Where we support an auditor's recommendation we follow up the matter to ensure that it is addressed.

Where auditors have suggested opportunities for improvement, we take a different approach. The utility can decide whether to implement an opportunity, based on its own assessment of whether the improvement is a prudent and efficient way to achieve its outcomes. We take this approach to balance improved performance with the investment required to achieve it. That is, we want the utility to consider the pricing implications of continued improvement and value for money, before the utility implements further improvements. As a consequence, we do not follow up these matters.

We held a project start up meeting with the auditors on 5 August 2014, to agree on the project milestones and timing of the audit, and outline our audit expectations. We also held an audit inception meeting with Sydney Water and GHD on the first day of the audit interviews, on 8 September 2014. At this meeting mutual understanding and expectations of the audit were established and protocols for the conduct of the audit were agreed.

The operating licence audit interviews were conducted from 8 to 11 September 2014 at Sydney Water's offices in Parramatta. On 10 September 2014, the auditor also undertook a site visit to West Camden Water Recycling Plant, Warragamba Water Filtration Plant and the West Hoxton Growth Area.

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

¹ IPART, *Audit Guideline – Public Water Utilities*, July 2014. This Audit Guideline is on our website (www.ipart.nsw.gov.au).

3 Summary of audit findings and recommendations

This chapter provides a summary of the auditor's findings and recommendations for each of the audited clauses of the licence. The 2013/14 audit is the fourth audit of the 2010-15 licence.

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

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

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

3.1 Water Quality

Sydney Water achieved High to Full Compliance for the audited clauses.

Chapter 2 of the licence outlines obligations relating to drinking and recycled water quality, including the way that Sydney Water must manage water quality. Under the risk based auditing framework, we consider that this part of the licence poses a high risk with respect to both the likelihood and consequence of non-compliance.

Table 3.1 Summary of compliance with Chapter 2 of the licence – Water quality

Clause Requirement		Compliance grading				
2	Water Quality	2010/11	2011/12	2012/13	2013/14	2014/15
2.1	Drinking Water	High-Full	Full	Full	Full	-
2.2	Recycled Water (including stormwater)	Full	Full	High	High	-

Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014.

3.1.1 Drinking Water Quality

The audit found that Sydney Water:

- ▼ has complied with the requirement to manage drinking water quality to the satisfaction of NSW Health in accordance with the Australian Drinking Water Guidelines 2001 (ADWG)
- ▼ fully complied with the ADWG's health long term compliance measures in respect to all of the 13 water delivery systems
- ▼ is well informed of the performance of its drinking water system and able to respond proactively to potential or actual incidents.

Further, systems and processes used by Sydney Water to manage drinking water were found to be comprehensive. Sydney Water's exception notifications and water quality reporting were found to comply with the required format and requirements of the reporting manual.

The audit found that strategies outlined in the Five Year Drinking Water Quality Management Plan are being implemented and reported appropriately.

The audit considered a case study in water quality incident management. A joint operational planning scenario took place between Sydney Water, Sydney Catchment Authority and NSW Health in August 2013 for the management of a high turbidity event due to flooding. Following this, in November 2013, a high turbidity event actually occurred at the Macarthur Water Filtration Plant as a result of a bushfire followed by flooding.

In both of these cases, actions and recommendations were developed as part of the de-briefing. However, the audit noted that while Sydney Water conducted well informed and detailed incident debriefs and scenario reviews, the timely implementation of the actions were not followed through at the time of the audit.

The audit also noted that document control was not up to date with respect to the review period. While both these issues were noted and opportunities for improvement were made, they were not considered substantive enough to warrant a change in compliance grade.

As a result of these findings, the audit awarded Full Compliance for clause 2.1 and no recommendations were made. The audit identified seven opportunities for improvement. Further details of the opportunities for improvement are presented below and available in the auditor's report in Appendix C.

3.1.2 Recycled Water (including Stormwater)

Recycled water (including stormwater) was awarded High Compliance.

The audit considered evidence relating to Sydney Water's five-year recycled water management plan, which provides an overarching framework for the management of recycled water quality by Sydney Water. Evidence relating to scheme specific recycled water quality plans was also considered in the audit. The scheme specific plans include information on each scheme relating to end use, treatment processes and site control information and applying the 12 elements of the Australian Guidelines for Water Recycling (AGWR) to the management of each scheme.

The audit noted that Sydney Water had made progress within the audit period with respect to the previous audit recommendations relating to the review and update of the scheme specific recycled water quality plans. Correspondence with NSW Health indicated it was satisfied with the plans submitted (although formal endorsement of the Liverpool scheme plan had not yet been received - see Chapter 4 for more details). The 4-year rolling program of the review of site specific recycled water quality management plans had been prepared to the satisfaction of NSW Health.

The audit viewed monitoring data that indicated the schemes were running well and that public health and environmental risks were managed during the audit period.

The audit noted the case study of the Stonecutters Ridge Golf Course (SCRGC) recycled water quality management plan, which is a new plan under development. The plan appears to reference the relationship and procedures between Sydney Water and SCRGC well.

Despite the above progress, the audit identified deficiencies with respect to documentation and reporting, evaluation and audit and review and continual improvement of the plans.

In the opinion of the auditor, the intention of Elements 10, 11 and 12 of the Australian Guidelines for Water Recycling (AGWR) was not met.

With respect to site specific plans, the auditor noted that most plans and elements are not current and updated as intended over successive operating licence audit periods. Issues with documentation included:

- ▼ Differing control and set points between documented Critical Control Points (CCPs) and Supervisory Control and Data Acquisition (SCADA) systems. Although SCADA limits were narrower than the documented control limits, the AGWR allows CCPs to be set showing an operating limit and a second action limit, which the auditor considered would avoid confusion.

- ▼ A lack of consistency between customer controls in the West Camden Recycled Water Quality Management Plan and the associated customer agreements. Site customer controls are relied on in addition to treatment to achieve complete Log Reduction Values. The previous audit identified that customer agreements did not adequately manage potential exposure or misuse risks.
- ▼ Contact with customer representatives is not maintained, operators did not have up to date contact details of customer representatives, and appropriate awareness training of new customer staff had not occurred.
- ▼ Decisions relating to validation were not documented.
- ▼ Water quality analysis covers a period to 2011. The Auditor noted that the data analysis included in the plan may no longer be indicative of the influent quality.
- ▼ A lack of clarity regarding the status of customer agreements.

Further, the audit found that the Corporate Plan (which is referenced by each of the site specific plans) was awaiting review and update.

Based on its findings, the audit awarded Sydney Water High Compliance for clause 2.2.

We make three recommendations in relation to clause 2.1, based on the auditor's recommendations.

Recommendations

- 1 Sydney Water should maintain an ongoing commitment to the review and update of Recycled Water Quality Management Plans via the four year-rolling program agreed with NSW Health. Further, Sydney Water should be able to demonstrate progress with its program in both documentation development and scheme specific implementation by 30 June 2015. Formal endorsement of the Liverpool plan by NSW Health should also be achieved by 30 June 2015.
- 2 Sydney Water should update site inspection checklists for water recycling schemes to include the names and contact details of the inspector and 'inspectee', and note the date and conditions during the inspection. Sydney Water should demonstrate that a number of schemes have been audited and field verified during 2014/15.
- 3 Sydney Water should undertake a site verification audit of the Recycled Water Quality Management Plan for the Stonecutters Ridge scheme during 2014/15.

The auditor also identified 11 opportunities for improvement with respect to the audited water quality clauses of the licence (clauses 2.1 and 2.2).

With respect to drinking water quality, these opportunities for improvement addressed issues such as better alignment of documentation with ADWG

terminology, timely follow up of actions from incident debriefs and scenario reviews, documentation of key decisions, document control and operator training opportunities.

For recycled water, improvements were suggested in documentation and management of Critical Control Points (CCPs), communication and reporting to customers and document control. Further details of the opportunities for improvement are available in the auditor's report in Appendix C.

3.2 Infrastructure performance

Sydney Water achieved Full Compliance for the audited clauses.

Chapter 3 of the licence outlines requirements for infrastructure performance, including asset management system performance standards and obligations regarding the Priority Sewerage Program. Under the risk based auditing framework, we consider that the infrastructure performance section of the licence poses a moderate to high risk with respect to both the likelihood and consequence of non-compliance.

Table 3.2 Summary of compliance with Chapter 3 of the licence – Infrastructure Performance

Clause	Requirement	Compliance grading				
		2010/11	2011/12	2012/13	2013/14	2014/15
3	Infrastructure Performance					
3.1.1	Managing assets	Full	Full	Full	Full	
3.1.2	Asset management framework	Full	-	-	High	
3.3	System Performance Standards	Full	-	-	Full	
3.4	Service quality and system performance indicators	Full	-	-	Full	
3.5	Response time for water main breaks	Full	-	-	Full	
3.6	Priority sewerage Program	Full	-	Full	Full	

Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014.
IPART, Sydney Water Corporation Operational Audit 2010/11 – Report to the Minister, November 2011.

3.2.1 Asset Management Obligation

The audit concluded that Sydney Water has complied with the requirement to manage assets consistently with its asset management framework.

The audit noted that the framework had been audited in the 2012 Water Services Association of Australia Aquamark benchmarking study and found to be “in the industry leader category of asset management development.”

Audit evidence supplied by Sydney Water included asset databases, procedures for creating new assets and disposing of old assets, asset management plans and risk registers. These demonstrated that Sydney Water had appropriate asset inventories, undertakes asset planning considering risks, maintains adequate records and completes contingency planning. A decision making framework including a delegation manual was also supplied, which provides guidance on the business case process in the creation of new assets. The auditor was satisfied with the information presented concerning management of services, processes for monitoring and undertaking condition assessments, and policies relating to maintenance.

The ‘field verification’ site visit and demonstrations of computer based systems and databases also provided an opportunity to view operations and training and resourcing aspects of the asset management framework. No issues of concern were identified.

Based on these findings, the auditor awarded Full Compliance for clause 3.1.2 of the licence. However, IPART has made the following observations regarding Sydney Water’s documentation of the audit management framework:

- ▼ Many documents submitted as evidence, including condition assessments, asset registers, procedures and guidelines and the Asset Management Framework itself were past their review date and it was apparent that the information contained within them was becoming dated. During the audit, some documents were observed to be up to three years past their scheduled review date.
- ▼ Asset management plans for the 2011-12 audit period were submitted as evidence to this audit, for all asset classes.
- ▼ The documents provided as audit evidence show gap analysis and action plans based on dated asset condition assessment data, asset management plans assigning projects and budgets based on the 2008-12 determination, and plans allocating responsibilities to old business units (which changed in restructures in 2011).
- ▼ Other information appeared uncontrolled or unfinished, with drafting instructions, highlights and lack of signoff.

Further, the audit investigated the case study of a sewage overflow incident at Glenfield in November 2013. The incident debrief was thoroughly completed and identified a number of actions to rectify and better manage future incidents, relating to retention of critical spares of assets and communication protocols. However, at the time of the audit, it was noted that these recommendations and

actions had not been implemented almost 10 months after the event had occurred.

The auditor noted that while these issues complemented other document control issues in other areas of the licence, they didn't substantiate a change in compliance grade. The auditor noted that these documents could be reviewed in the preparation for the new operating licence. We do not share this opinion.

We note that the audit found that assets were well maintained and were performing well. However, we consider that documents that are uncontrolled or unreviewed for long periods of time increase the risk of information becoming dated and less relevant to and reflective of current practice. It also increases the chance of loss of organisational knowledge as staff leave or move around the organisation and new staff are employed. Documents with responsibilities assigned to divisions according to an outdated organisational structure can create confusion about which responsibilities are assigned to staff.

We therefore consider that the requirement of clause 3.1.2(e) of the operating licence has not been fully met. Clause 3.1.2(e) requires that "Sydney Water's asset management framework must demonstrate: robust and transparent processes of review and continuous improvement."

In our view, to fully demonstrate robust and transparent processes of review and continuous improvement, documents should be kept up to date to reflect current practice and information. Further, timely implementation of actions identified by incident debriefs and planning scenarios is also essential to demonstrate that processes of review and continuous improvement are robust and transparent.

For these reasons, we have determined a different grade (High Compliance) to that of the auditor (which found Full Compliance). We have consequently also made two corresponding recommendations (see recommendations 4 and 5 below). One recommendation relates to document control across the organisation,² and the other recommendation relates to the implementation of actions arising from incident debriefs and planning scenarios. These recommendations are listed below.

3.2.2 System Performance Standards and Response times for water main breaks

The audit considered the water pressure, water continuity and sewage overflow standards reported to us annually. The standards are outlined in clauses 3.3.1, 3.3.2 and 3.3.3 of the licence and set limits on the number of properties that shall experience a service failure in any financial year. Response times for water main breaks were also audited this year (clause 3.5). The audit considered the

² This recommendation applies across the organisation because document control was identified as an issue in other areas of Sydney Water.

numbers reported and the systems used to record and calculate the data that is reported (clause 3.4).

The audit concluded that Sydney Water had met the requirements of the water pressure, the water continuity and the sewage overflow standards this year and that the systems used to record and calculate the data were sound. Sydney Water's performance against its system performance standards and response time targets in 2013/14 is presented in Table 3.3 below.

Table 3.3 System Performance Standards / Response time targets

System Performance Standard	Target	2013/14 Performance
SPS 1 - Water Pressure Standard	6,000	661
SPS 2 - Water Continuity Standard (1)	40,000	32,438
SPS 3 - Water Continuity Standard (2)	14,000	4,978
SPS 4 - Sewage overflow Standard (1)	14,000	8,869
SPS 5 - Sewage overflow Standard (2)	175	66
RT 1 – Priority 6 breaks / leaks	90% of jobs within 3 hours	92%
RT 2 – Priority 5 breaks / leaks	90% of jobs within 6 hours	91%
RT 3 – Priority 4 breaks / leaks	90% of jobs within 5 days	94%

Source: Sydney Water Operating Licence 2010-2015 Compliance Report, 1 September 2014; and Email Sydney Water Corporation to IPART, 13 November 2014.

After the audit interviews, but prior to the finalisation of the auditor's report, Sydney Water identified that it had miscalculated and under reported against the water continuity standard over the last four years of the current licence.

Upon identifying the error Sydney Water has recalculated the water continuity standard for the previous four years. The figures, which have been revised upwards, have not exceeded the standard for any of the years.

The corrected figures for the water continuity standards are presented in Table 3.4 and Table 3.5 below. In the auditor's opinion, this error has not impacted on compliance awarded to this clause since the standard has still been met. Accordingly, the auditor awarded Full Compliance to clause 3.3 of the operating licence.

However, we consider that this error warrants reconsideration of the audit grade for Clause 9 of the operating licence. This clause deals with Sydney Water's reporting obligations as set out in the Reporting Manual (see section 3.6 of this report for further details).

Table 3.4 Water Continuity Standard - Previously reported and corrected figures

3.3.2 (a)(1) Sydney Water must ensure that: no more than 40,000 Properties experience an unplanned water interruption exceeding five hours in a financial year in its drinking water system

Financial Year	Previously Reported	Corrected figure
2010-11	27,978	29,281
2011-12	28,386	30,919
2012-13	30,806	31,569
2013-14	30,687	32,438

Source: Email Sydney Water Corporation to IPART, 13 November 2014.

Table 3.5 Water Continuity Standard - Previously reported and corrected figures

3.3.2 (a)(2) Sydney Water must ensure that: no more than 14,000 Properties experience three or more unplanned interruptions of more than 1 hour duration in a financial year in its drinking water system

Financial Year	Previously Reported	Corrected figure
2010-11	5,305	5,363
2011-12	4,171	5,147
2012-13	4,918	6,363
2013-14	4,535	4,978

Source: Email Sydney Water Corporation to IPART, 13 November 2014.

3.2.3 Priority Sewerage Program

Progress against the Priority Sewerage Program was audited with respect to the obligations of clause 3.6 of the operating licence. Delivery of wastewater services was required by 30 June 2014 to Wilton, Douglas Park, West Hoxton, Bargo, Buxton and Cowan. Audit evidence was provided in the form of certificates of availability to confirm the delivery of services to these areas. In the case of Wilton, wastewater connections/services are available, however, a temporary transfer arrangement will be in place until construction and commissioning of the treatment plant has been completed.

Accordingly, the audit awarded Sydney Water Full Compliance with clause 3.6 of the licence.

Based on our audit of the infrastructure performance clauses of the licence, we make the two recommendations listed below. These are in response to the documentation and document control issues that were noted during the audit. Our recommendation for document control relates to Sydney Water's services and activities covered by the operating licence - including water quality, customer and consumer rights and water conservation.

Recommendations

- 4 Sydney Water should ensure that document control is implemented across the organisation for all key documents relating to its services and activities covered by the operating licence. Key knowledge, processes and practices need to be documented, controlled and endorsed with appropriate signoff.

Sydney Water should demonstrate that information in controlled documents retains currency by implementing regular reviews in accordance with its risk based document control review schedules. By 30 June 2015, Sydney Water should establish a review schedule to ensure that all controlled documents are brought up to date according to the risk level of the document.

- 5 By 30 June 2015, Sydney Water should review its incident and scenario close out procedures and documentation relating to services and activities covered by the operating licence, to ensure appropriate and timely close out of actions are implemented.

The auditor also identified two opportunities for improvement in relation to Chapter 3 of the licence. These opportunities addressed documentation and follow up of incident debrief actions. We have incorporated these into Recommendations 4 and 5 above. Further details of the opportunities for improvement are available in the auditor's report in Appendix C.

3.3 Customer and consumer rights

Chapter 4 of the licence outlines obligations relating to the customer and consumer rights. Under the risk based auditing framework, we consider that this part of the licence poses a low to moderate risk with respect to both the likelihood and consequence of non-compliance.

Table 3.6 Summary of compliance with Chapter 4 of the licence – Customer and consumer rights

Clause	Requirement	Compliance grading				
		2010/11	2011/12	2012/13	2013/14	2014/15
4	Customer and consumer rights					
4.4	Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment	Full	-	High	Full	-
4.5.1	Customer Councils	Full	-	-	Full	-

Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014.
IPART, Sydney Water Corporation Operational Audit 2010/11 – Report to the Minister, November 2011.

3.3.1 Customer related practices and procedures

Sydney Water achieved Full Compliance for the audited clauses. Clause 4.4 requires Sydney Water to have in place and comply with procedures relating to customer hardship, debt, water flow restriction and disconnection. The operating licence prescribes what the procedures must include.

Sydney Water was able to demonstrate compliance with this clause by providing a comprehensive suite of documents that address the areas of customer hardship, debt, water flow restrictions and disconnection. The documents were reviewed with reference to the obligations of clause 4.4 (a) and were found to be compliant with the requirements. Staff were interviewed, and were found to be knowledgeable of the policies and procedures and received regular training.

The auditor made no recommendations regarding this clause. However, some document management and control processes were noted as opportunities for improvement. Further details of the opportunities for improvement are available in the auditor's report in Appendix C.

3.3.2 Customer Councils

The auditor found that Sydney Water has complied with the requirements relating to Customer Councils. Sydney Water provided evidence such as the Customer Council Charter, Meeting Agendas, meeting minutes and business papers to demonstrate that its Customer Council is in place, includes appropriate representation, has regular council meetings and presents relevant issues for discussion. Further, two customer council representatives were interviewed on the telephone and were supportive of the conduct of the Council.

As a result, the audit awarded Full Compliance for clause 4.5.1 of the licence and no recommendations or opportunities for improvement were identified.

The auditor identified one opportunity for improvement for clause 4.4. This also related to document management and control (discussed above). Further details of the opportunities for improvement are available in the auditor's report in Appendix C.

3.4 Environment – indicators and management

Sydney Water achieved Full Compliance for the audited clauses.

Chapter 6 of the licence outlines the obligations relating to Sydney Water's environmental management system and the indicators it must report. Under the risk based auditing framework, we consider that this part of the licence poses a moderate risk with respect to both the likelihood and consequence of non-compliance.

Table 3.7 Summary of compliance with Chapter 6 of the licence – Environment – indicators and management

Clause	Requirement	Compliance grading				
		2010/11	2011/12	2012/13	2013/14	2014/15
6	Environment – indicators and management					
6.1	Environment management	Full	-	-	Full	-
6.2	Environmental indicators	Full	-	-	Full	-

Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014.
IPART, Sydney Water Corporation Operational Audit 2010/11 – Report to the Minister, November 2011.

The audit found that Sydney Water has complied with the requirement to maintain an environmental management system (EMS). Sydney Water provided current certificates and recertification reports showing the internal and external audits of the EMS. A review of the Operating Licence Environment Report was also conducted with reference to the requirements of the Reporting Manual, and the report was found to comply with the obligations of the Reporting Manual. As a result, the audit awarded Full Compliance for clauses 6.1 and 6.2. No recommendations were made. One opportunity for improvement was identified. Further details of the opportunities for improvement are available in the auditor's report in Appendix C.

3.5 Water conservation

Sydney Water achieved Full Compliance for the audited clauses in the Water conservation chapter.

Chapter 7 of the licence outlines Sydney Water's obligations relating to the water usage level, water leakage, water efficiency, and water recycling programs and reporting requirements. Under the risk based auditing framework, we consider that this part of the licence poses a moderate risk with respect to both the likelihood and consequence of non-compliance.

Table 3.8 Summary of compliance with Chapter 7 of the licence – Water conservation

Clause	Requirement	Compliance grading				
		2010/11	2011/12	2012/13	2013/14	2014/15
7	Water conservation					
7.1	Water usage level	Full	-	-	Full	-
7.2	Water leakage	Full	Full	-	Full	-
7.3	Water efficiency programs	Full	-	-	Full	-
7.4	Water recycling program (including stormwater)	Full	-	-	Full	-

Clause	Requirement	Compliance grading				
		2010/11	2011/12	2012/13	2013/14	2014/15
7	Water conservation					
7.5	Water conservation strategy document and annual report	Full	-	-	Full	-

Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014.
IPART, Sydney Water Corporation Operational Audit 2011/12 – Report to the Minister, December 2012.
IPART, Sydney Water Corporation Operational Audit 2010/11 – Report to the Minister, November 2011.

3.5.1 Water usage and leakage

Sydney Water provided evidence to demonstrate that the water usage level in 2013/14 was 307 L per person per day, which is below the 329 L per person per day target prescribed in the licence. Similarly, the figure calculated by Sydney Water for the 2013/14 leakage level was 107 ML per day, which is within the range allowed by the Reporting Manual (the Reporting Manual requires Leakage to be in the range of 105 ± 16 ML per day).

3.5.2 Water efficiency

Sydney Water provided evidence that it promoted water efficiency in the following media:

- ▼ social media
- ▼ water newsletters accompanying water bills
- ▼ local newspaper coverage, and
- ▼ sponsorship to promote water efficiency.

Sydney Water also cited the PlumbAssist program, which is designed to help hardship customers manage household water usage and leakage.

Further, Sydney Water presented a case study of the Sutherland Infill Development to demonstrate how water efficiency allowed the deferral of this capital expenditure project.

3.5.3 Water Recycling

Sydney Water provided information on its water recycling schemes together with fact sheets and information to demonstrate that it undertakes, promotes and shares knowledge about recycling to help facilitate third party recycling schemes.

3.5.4 Water Conservation Strategy document and annual report

The annual report on Sydney Water's progress in implementing its water conservation strategies was reviewed and found to comply with the requirements of the operating licence and reporting manual. The report was awaiting upload to the website, pending tabling in Parliament, but evidence was sighted that previous year's reports had been uploaded to the website. The auditor also viewed the Five Year Water Conservation Strategy document on the Sydney Water website, satisfying the requirements of clause 7.5(d), which requires these documents to be placed on Sydney Water's website.

As a result, the auditor awarded Full Compliance for audited clauses in Chapter 7 of the licence and made no recommendations. The auditor identified one opportunity for improvement, which related to the documentation and data validation process of calculating the water usage figure.

3.6 Reporting and maintaining records

Sydney Water was awarded High Compliance for the audited clause.

Chapter 9 of the licence outlines the reporting obligations to comply with the reporting manual, provision of information to NSW Health and maintaining record systems to enable Sydney Water to accurately report in accordance with the reporting manual. Under the risk based auditing framework, we consider that this part of the licence poses a low risk with respect to both the likelihood and consequence of non-compliance.

Table 3.9 Summary of compliance with Chapter 9 of the licence – Reporting and maintaining records

Clause	Requirement	Compliance grading				
		2010/11	2011/12	2012/13	2013/14	2014/15
9	Reporting and Maintaining Records					
9(a) - (c)	Reporting and Maintaining Records	Full	-	-	High	-

Source: GHD, *IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report*, November 2014.
IPART, *Sydney Water Corporation Operational Audit 2010/11 – Report to the Minister*, November 2011.

Audit evidence provided included a large number of reports that were reported on time and in accordance with the reporting manual. Staff from NSW Health were contacted and verified that information regarding water quality was provided within the required timeframes.

With respect to the error identified by Sydney Water in the reporting of the water continuity standard (discussed in section 3.2.2 above), the auditor examined this matter and decided to retain the Full Compliance audit grading for clause 9 because the error was, in their opinion, not significant, the target level was not

breached and the original reports had been supplied to IPART within the required timeframe. We do not share this opinion.

The System Performance Standards are an important operating licence requirement, which define the minimum level of performance or service required of Sydney Water. Further, the standard provides important information about the operation of the system. Although the performance standards were never exceeded, we are concerned that this data has been misreported for four years.

Sydney Water has explained that the error identified was limited to only a small number of the total indicators and data reported.

We consider that, given the error identified, the appropriate level of compliance is High Compliance, rather than the Full Compliance awarded by the auditor. We have also included a recommendation relating to Quality Assurance processes, to ensure that data reported to regulatory bodies is accurate.

- 6 By 30 June 2015, Sydney Water should review its QA processes to ensure that data reported to regulatory bodies is accurate and meets the assigned definitions.

3.7 Request for information and access

Sydney Water achieved Full Compliance for the audited clause.

Chapter 10 of the licence outlines obligation regarding provision of information to IPART and NSW Health. Under the risk based auditing framework, we consider that this part of the licence poses a moderate risk with respect to both the likelihood and consequence of non-compliance.

Table 3.10 Summary of compliance with Chapter 10 of the licence – Request for information and access

Clause	Requirement	Compliance grading				
		2010/11	2011/12	2012/13	2013/14	2014/15
10	Request for information and access					
10.2	NSW Health	Full	-	-	Full	

Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014.
IPART, Sydney Water Corporation Operational Audit 2010/11 – Report to the Minister, November 2011.

The audit found that Sydney Water has met the requirement to comply with any request by NSW Health for information relating to water quality. NSW Health was contacted and verified that no requests were made regarding water quality. As a result, the audit awarded Full Compliance for clause 10.2 and no recommendation or opportunities for improvement were identified.

3.8 Memoranda of understanding

Sydney Water achieved Full Compliance for the audited clause.

Chapter 11 of the licence outlines the obligations requiring Sydney Water to maintain Memoranda of Understanding (MoUs) with the Water Administration Ministerial Corporation, NSW Health and DECCW³ for the term of the licence. Under the risk based auditing framework, we consider that this part of the licence poses a low risk with respect to both the likelihood and consequence of non-compliance.

Table 3.11 Summary of compliance with Part 11 of the licence – Memoranda of Understanding

Clause	Requirement	Compliance grading				
		2010/11	2011/12	2012/13	2013/14	2014/15
11	Memoranda of Understanding					
11	Memoranda of Understanding	Full	-	-	Full	-

Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014.
IPART, Sydney Water Corporation Operational Audit 2010/11 – Report to the Minister, November 2011.

The auditor found that Sydney Water has complied with the requirement to maintain MOUs with the listed organisations. MoU's were reviewed and found to be current and covering the required content. A number of other MoUs with other organisations were also sighted. As a result, the audit awarded Full Compliance for clauses 11(a), (b) and (c) and no recommendations or opportunities for improvement were identified.

³ DECCW is the former Department of Environment, Climate Change and Water – now the NSW Environment Protection Authority (EPA).

4 Progress on previous audit recommendations

A previous audit in 2012/13 identified areas where Sydney Water's performance with its licence obligations did not receive Full Compliance. We previously made recommendations to the Minister to address these issues.⁴ The following table outlines Sydney Water's progress in implementing these recommended actions.

Table 4.1 Sydney Water's progress in 2013/14 to address our recommendations from the 2012/13 audit

Recommendation	Progress
<p>1 Sydney Water's internal processes for ensuring compliance of customers' operating recycled water schemes (classified municipal use - restricted access and application, or municipal use – enhanced restrictions on access and application) with their contract should be strengthened. At the moment, Sydney Water relies on the Annual Declarations from customers to manage the potential exposure risks or inappropriate uses of recycled water.</p> <p>As a minimum, Annual Declarations forms need to be strengthened and all customers advised on how to properly complete their Annual Declarations. Where appropriate, customers are to re-submit declarations for 2012/13 that have not been completed properly.</p> <p>Additional procedures, such as site inspections for signage and usage controls, should be considered.</p>	<p>Partly Completed</p> <p>An inspection checklist has been drawn up, but inspections have not been carried out. They are planned for the summer months. Business customer service officers have been allocated as liaison points for each scheme customer and to maintain contact as required.</p> <p>Annual declarations were received from all customers, incorrectly completed declarations were resubmitted.</p>
<p>2 The Recycled Water Quality Management Plan should be updated to fully reflect how Sydney Water's Liverpool recycled water plant is configured and how it is achieving breakpoint chlorination. It also needs to specify target limits, as well as critical limits. This should be given to NSW Health for endorsement.</p>	<p>Completed</p> <p>The Liverpool RWQMP was updated to reflect physical changes that had been occurring at the site (e.g. the new chlorine tank). This updated Plan was supplied to NSW Health at the end of June 2014. No response has been received from NSW Health to date, however the phone interview confirms that NSW Health is likely to endorse the Plan shortly. Formal</p>

⁴ IPART, *Sydney Water Operational Audit 2012/13 Report to the Minister*, 2013.

4 Progress on previous audit recommendations

	endorsement of the plan will be checked with the progress check of the four year rolling program. This recommendation can now be closed out.
3 Following the treatment plant verification program, the Recycled Water Quality Management Plans should be reviewed and updated, where appropriate, and submitted to NSW Health for endorsement	Completed The four year rolling program of review has been prepared by Sydney Water and endorsed by NSW Health. This can now be closed out.






Source: GHD, IPART Sydney Water Corporation Operational Audit 2013-14 Audit Report, November 2014.



Appendices

A Compliance grades

Compliance grades for public utilities

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

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

B | 2013/14 audit scope

SYDNEY WATER CORPORATION – 2013-2014 AUDIT SCOPE

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

Auditors should note any directions shown as comments column.

This scope is based on the audit schedule determined for the operating licence 2010 -2015 Trim Record Number: D14/16849

Recommendations from previous years

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

Statement of Compliance

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

Table 1 – Audit scope 2013-2014 Sydney Water Corporation

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
2.1	Drinking Water		
	<p>(a) Sydney Water must manage Drinking Water quality to the satisfaction of NSW Health in accordance with the Australian Drinking Water Guidelines (unless NSW Health specifies otherwise).</p> <p>(b) Sydney Water must prepare, to the satisfaction of NSW Health, a Five Year Drinking Water Quality Management Plan covering the entire five year term of the Licence. The Five Year Drinking Water Quality Management Plan must be in operation by 31 December 2010 and include strategies for the comprehensive management of the quality of Drinking Water in Sydney Water's water supply system in accordance with the Australian Drinking Water Guidelines (unless NSW Health specifies otherwise).</p> <p>(c) The Five Year Drinking Water Quality Management Plan is to be revised for the period 1 July 2015 to 30 June 2020. Sydney Water must provide a draft revised Five Year Drinking Water Quality Management Plan to NSW Health by 31 December 2014.</p> <p>(d) Sydney Water is to implement procedures and processes for the appropriate management of the Drinking Water supply system under its control in light of its knowledge of the entire Drinking Water supply system (from the source to the consumer). Sydney Water must have adequate systems and processes in place to manage Drinking Water quality taking into account planning and risk management and their implementation across the entire Drinking Water supply system.</p> <p>(e) Sydney Water must comply with the fluoridation plant operating targets set out in the Fluoridation Code.</p> <p>(f) Sydney Water must report on Drinking Water quality monitoring in the manner and form outlined in the Reporting Manual.</p>	Audit	<p>Audit 2.1 (a), (b), (d) and (f) only.</p> <p>Audit will include a risk based adequacy audit of the system, and implementation of the system.</p> <p>The elements of the ADWG framework and the scheme/ sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors.</p> <p>Past field verification sites are listed in table 3 below.</p> <p>Auditor is to write to NSW Health regarding its satisfaction with Sydney Water's management of Drinking Water Quality.</p>
2.2	Recycled Water (including stormwater)		
	<p>Sydney Water must manage Recycled Water quality in accordance with:</p> <p>(a) the Australian Guidelines for Water Recycling (unless NSW Health specifies otherwise) to the satisfaction of NSW Health; and/or</p> <p>(b) any other guidelines specified by NSW Health to the satisfaction of IPART.</p> <p>(c) Sydney Water must report on Recycled Water quality monitoring in the manner and form outlined in the Reporting Manual.</p>	Audit	<p>Audit will include a risk based adequacy audit of the system, and implementation of the system.</p> <p>The elements of the AGWR framework and the scheme/ sites to be visited for field verification will be determined by IPART in consultation with NSW Health and the auditors.</p> <p>Past field verification</p>

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
			<p>sites are listed in table 3 below.</p> <p>Auditor is to write to NSW Health regarding its satisfaction with Sydney Water's management of Recycled Water Quality.</p>
2.3	Changes to management of water quality		
	<p>(a) Sydney Water must notify NSW Health of any proposed changes to its processes for:</p> <p>(1) managing; or</p> <p>(2) reporting to NSW Health in relation to; Drinking Water quality under clause 2.1 or Recycled Water quality under clause 2.2 where such changes may have a material impact on public health.</p> <p>(b) Sydney Water must obtain NSW Health's approval for any changes notified under clause 2.3(a) before implementing them.</p>	SC	Prior notice of change IPART to be advised of any changes prior to finalisation of audit scopes.
3.1.1	Managing Assets		
	Sydney Water must ensure that its Assets are managed consistently with the asset management framework described in clause 3.1.2.	Audit	<p>Audit primary focus is to be on implementation of the framework.</p> <p>IPART in consultation with the auditor will select 1 or 2 classes of asset/ facilities to check implementation of the framework.</p> <p>Past field verification sites are listed in table 3 below.</p> <p>Note: adequacy of some components of the framework may be assessed if issue arises or is required for checking implementation.</p>
3.1.2	Asset management framework		
	<p>Sydney Water's asset management framework must demonstrate:</p> <p>(a) robust and transparent methodologies for determining and prioritising licensing and other regulatory requirements and current and future service levels as well as identifying the infrastructure needed to achieve those service levels and requirements;</p>	Audit	<p>Audit primary focus is to be on implementation of the framework.</p> <p>IPART in consultation with the auditor, will select 1 or 2 classes of asset/ facilities to check</p>

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	<p>(b) robust, transparent and consistent processes, practices and programs to ensure sustainable delivery of service levels and regulatory requirements, based on sound risk management, including:</p> <ol style="list-style-type: none"> (1) asset inventory; (2) asset planning incorporating both business and technical risk assessments; (3) maintenance of adequate records and robust and reliable data; (4) asset replacement, rehabilitation, augmentation, creation/acquisition and/or substitution (asset and non asset substitutions); (5) management of service provision, including contracts; (6) monitoring and condition assessment; (7) proactive and reactive maintenance; (8) operations; (9) training and resourcing; (10) contingency planning covering both emergency management and business continuity; and (11) asset rationalisation and disposal; <p>(c) robust and transparent decision making processes that balance acceptable risk with cost and service provision to achieve prudent, efficient and effective operating and capital investment;</p> <p>(d) an approach that achieves the lowest cost of service delivery through the effective life cycle management of the asset base; and</p> <p>(e) robust and transparent processes of review and continuous improvement in asset management.</p>		<p>implementation of the framework. A list of assets/facilities visited in the past is included in Table 3 at the end of this scope.</p> <p>Note: adequacy of some components of the framework may be assessed if issue arises or is required for checking implementation.</p>
3.2	Notification of significant changes to asset management framework		
	Sydney Water must advise IPART of any significant changes to processes and methodologies established in accordance with clause 3.1.2 which may have a material impact on the asset management framework.	SC	Prior notice of change IPART to be advised of any changes prior to finalisation of audit scopes.
3.3	System performance standards		
	<p>(a) For the purposes of this clause 3.3 (except in relation to Uncontrolled Sewerage Overflows under clause 3.3.3), each separately billed or separately occupied part of multiple occupancy Property is considered to be a separate Property.</p> <p>(b) For the purposes of Uncontrolled Sewerage Overflows under clause 3.3.3, each multiple occupancy Property is counted as a single Property.</p> <p>(c) In the case of any ambiguity in the definition or application of any system performance standards, IPART's interpretation or assessment of the system performance standards will prevail.</p>	NR	
3.3.1	Water Pressure Standard		

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	<p>(a) Water Pressure Standard Sydney Water must ensure that no more than 6,000 Properties experience a Water Pressure Failure in a financial year in its Drinking Water supply system.</p> <p>(b) Water Pressure Failure</p> <p>(1) A Property is taken to have experienced a Water Pressure Failure at each of the following times:</p> <p>(A) when a person notifies Sydney Water that the Property has experienced a Water Pressure Failure and that Water Pressure Failure is confirmed by Sydney Water; or</p> <p>(B) when Sydney Water's systems identify that the Property has experienced a Water Pressure Failure.</p> <p>(2) A Property will not be taken to have experienced a Water Pressure Failure only because of a short term operational problem (such as a main break) which is remedied within 4 days of its occurrence or from abnormal demand (such as demand during fire fighting).</p> <p>(3) Clause 3.3.1(b)(1) does not limit the circumstances in which a Property will have experienced a Water Pressure Failure.</p>	Audit	Audit to also check calculation methods
3.3.2	Water Continuity Standard		
	<p>(a) Water Continuity Standard Sydney Water must ensure that:</p> <p>(1) no more than 40,000 Properties experience an Unplanned Water Interruption exceeding 5 hours in a financial year; and</p> <p>(2) no more than 14,000 Properties experience 3 or more Unplanned Water Interruptions of more than 1 hour duration in a financial year, in its Drinking Water supply system.</p> <p>(b) Unplanned Water Interruption</p> <p>(1) In determining whether a Property experiences an Unplanned Water Interruption a best estimate is to be applied from the best available data, taking account of water pressure data where that data is available.</p> <p>(2) A Property is taken to have experienced a separate Unplanned Water Interruption for each period of 5 hours or more that the Unplanned Water Interruption exists.</p> <p>(3) Clause 3.3.2(b)(2) does not limit the circumstances in which a Property will have experienced an Unplanned Water Interruption under clause 3.3.2(b)(1).</p>	Audit	Audit to also check calculation methods
3.3.3	Sewage Overflow Standard		
	<p>Sydney Water must ensure that:</p> <p>(a) no more than 14,000 Properties (other than Public Properties) experience an Uncontrolled Sewage Overflow in dry weather in a financial year; and</p>	Audit	Audit to also check calculation methods

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	(b) no more than 175 Properties (other than Public Properties) experience 3 or more Uncontrolled Sewage Overflows in dry weather in a financial year.		
3.4	Service quality and system performance indicators		
	<p>(a) Sydney Water must maintain record systems that are sufficient to enable it to measure accurately its performance against the Service Quality and System Performance Indicators.</p> <p>(b) In the case of any ambiguity in the definition or application of any indicators, IPART's interpretation or assessment of the indicators will prevail.</p>	Audit	Audit to also check calculation methods
3.5	Response time for water main breaks		
	<p>(a) Sydney Water's response to water main breaks and leaks (in the trunk and reticulation components of Sydney Water's Drinking Water supply system between water treatment plants and a Property), as measured from the time Sydney Water receives notification of a break or leak to the time Sydney Water stops the loss of water, will be as follows:</p> <ol style="list-style-type: none"> (1) Priority 6 breaks/leaks 90% of jobs within 3 hours (2) Priority 5 breaks/leaks 90% of jobs within 6 hours (3) Priority 4 breaks/leaks 90% of jobs within 5 days <p>(b) Categorisation of Priorities 4, 5 and 6 is set out in Schedule 3.</p>	Audit	Audit to also check calculation methods and process for determining characterisation.
3.6	Priority Sewage Program		
	<p>(a) Sydney Water must continue with the planning and delivery of the Priority Sewerage Program such that wastewater services are provided to the requisite number of lots in the following areas by the dates specified below:</p> <ol style="list-style-type: none"> (1) Agnes Banks and Londonderry by 31 December 2012 (2) Glossodia, Freeman's Reach and Wilberforce by 31 December 2012 (3) Yellow Rock and Hawkesbury Heights by 31 December 2012 (4) Appin by 30 June 2015 (5) Wilton and Douglas Park by 30 June 2014 (6) West Hoxton by 30 June 2014 (7) Bargo and Buxton by 30 June 2014 (8) Cowan by 30 June 2014 (9) Galston and Glenorie by 30 June 2015. <p>(b) Sydney Water will commence planning for Yanderra by 30 June 2015.</p> <p>(c) If either Sydney Water or a licensee under the <i>Water Industry Competition Act 2006</i> provides wastewater services to a significant</p>	Audit	<p>Audit 3.6 (a), (e) and (f).</p> <p>Audit should check that 2013/14 requirements have been met.</p>

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	<p>development (as determined by the Minister) in an adjoining area to one of the following areas in the Priority Sewerage Program:</p> <p>(1) Austral</p> <p>(2) Menangle and Menangle Park,</p> <p>then Sydney Water must deliver the Priority Sewerage Program in that area such that wastewater services are made available to customers within 24 months of wastewater services being available to service the significant development.</p> <p>(d) Clause 3.6(b) does not apply where a licensee under the <i>Water Industry Competition Act 2006</i> provides wastewater services to the relevant area of the Priority Sewerage Program.</p> <p>(e) Should delays caused by consent authorities impair Sydney Water's ability to meet the timeframes set out in this clause 3.6, Sydney Water must write to the Minister to advise of the reasons for the delay.</p> <p>(f) Sydney Water must provide an annual report on its progress in implementing the Priority Sewerage Program to IPART in accordance with the <i>Reporting manual</i>.</p>		
4.1	Customer Contract		
	<p>(a) Section 54 of the Act requires that the terms and conditions of a customer contract are set out in Sydney Water's operating licence. Sydney Water's customer contract is set out in Schedule 2 (Customer Contract).</p> <p>(b) The Customer Contract sets out the rights and obligations of Customers and Sydney Water in relation to the Services provided through systems required under the Licence. These rights and obligations are in addition to the rights and obligations conferred by the Act and any other law.</p> <p>(c) A copy of the Customer Contract, and any variations to it must be posted on Sydney Water's website for downloading by any person free of charge and provided to Customers free of charge upon request.</p>	SC	
4.2.1	Explaining the Customer Contract		
	<p>Sydney Water must prepare a pamphlet that:</p> <p>(a) provides a brief explanation of the Customer Contract;</p> <p>(b) summarises the key rights and obligations of Customers under the Customer Contract;</p> <p>(c) refers to the types of account relief available for Customers experiencing financial hardship; and</p> <p>(d) contains a list of Sydney Water's contact numbers in its Area of Operations.</p>	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
4.2.2	Explaining variation to Customer Contract		
	<p>The pamphlet prepared under clause 4.2.1 must be updated when changes are made to the Customer Contract and must be disseminated by Sydney Water free of charge to:</p> <p>(a) Customers, at least once annually with their quarterly or other bills; and</p> <p>(b) any other person on request.</p>	SC	
4.3	Consumers		
	<p>Sydney Water's obligations under the Customer Contract relating to complaint handling and complaint resolution procedures are extended to Consumers as if the Consumers were a party to the relevant Customer Contract.</p>	SC	
4.4	Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment		
	<p>(a) Sydney Water must have in place and comply with procedures relating to customer hardship, debt, water flow restriction and disconnection. These procedures must include:</p> <ol style="list-style-type: none"> (1) a customer hardship policy for residential Customers, that helps residential Customers in financial difficulty better manage their current and future bills; (2) a payment plan for residential Customers who are responsible for paying their bill and who are, in Sydney Water's opinion, experiencing financial difficulty; (3) conditions for disconnection of supply or water flow restriction in accordance with the disconnection procedure set out in the Customer Contract; and (4) provisions for self-identification, identification by community welfare organisations and identification by Sydney Water of residential Customers experiencing financial difficulty. <p>(b) Sydney Water must set out the procedures relating to customer hardship, debt, water flow restriction and disconnection referred to in clause 4.4(a) in the Customer Contract.</p> <p>(c) Sydney Water must provide information on its procedures relating to customer hardship, debt, water flow restriction and disconnection free of charge to:</p> <ol style="list-style-type: none"> (1) residential Customers, at least once annually with their quarterly or other bills; (2) residential Customers who are identified as experiencing financial difficulty; and (3) any other person who requests it. <p>(d) Sydney Water must publish its procedures relating to customer hardship, debt, water flow restriction and disconnection on its website.</p> <p>(e) Sydney Water must advise residential Customers of their rights, including any rights to have a</p>	Audit	<p>In 2012/13 Audit, SWC did not follow procedures for a small number of customers. Actions have been taken to prevent this from happening again; this should be checked by auditor.</p> <p>Audit for 2014/15 should also be informed by review of new performance indicators, which will be updated for the first time in 2013/14</p>

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	complaint or dispute referred to the Energy and Water Ombudsman NSW for resolution.		
4.5.1	Customer Councils		
	<p>(a) In accordance with the Act, Sydney Water must have in place and regularly consult with a Customer Council to enable community involvement in issues relevant to the performance of Sydney Water's obligations under the Licence. Sydney Water may have one or more Customer Councils.</p> <p>(b) Sydney Water must consult with the Customer Council, in accordance with the terms of the relevant Customer Council Charter, on:</p> <ol style="list-style-type: none"> (1) the interests of Customers and Consumers of Sydney Water; (2) the Customer Contract; and (3) such other key issues related to Sydney Water's planning and operations as Sydney Water may determine. <p>(c) Sydney Water must appoint the members of a Customer Council, consistent with the Licence.</p> <p>(d) At all times, the membership of a Customer Council must include a representative for the interests of at least each of the following:</p> <ol style="list-style-type: none"> (1) business and consumer groups; (2) low income households; (3) people living in rural and urban fringe areas; (4) residential consumers; (5) environmental groups; (6) local government; and (7) people from culturally and linguistically diverse backgrounds. <p>(e) Sydney Water must provide a Customer Council with information within its possession or under its control (other than information or documents over which Sydney Water or another person claims confidentiality or privilege) necessary to enable that Customer Council to discharge the tasks assigned to it.</p>	Audit	Audit should be limited to telephone interview of sample of council members regarding the operation of the council.
4.5.2	Customer Council Charter		
	<p>(a) In consultation with members of each Customer Council, Sydney Water must maintain a customer council charter (Customer Council Charter) that addresses:</p> <ol style="list-style-type: none"> (1) the role of the Customer Council; (2) selection criteria on how members will be drawn from the community; (3) how the Customer Council will operate; (4) induction processes for new members; (5) a description of the type of matters that will be referred to the Customer Council; (6) procedures for the conduct of Customer Council meetings, including the appointment of a chairperson and the requirement to invite on an annual basis a co-chair of the Customer Council from Customer representatives; 	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	<ul style="list-style-type: none"> (7) communicating the outcome of the Customer Council's work to the public, including the publication of meeting agenda and minutes on Sydney Water's website; (8) procedures for tracking issues raised and ensuring appropriate follow-up of those issues; and (9) funding and resourcing of the Customer Council by Sydney Water including sitting fees and expenses for members. <p>(b) Either Sydney Water or the Customer Council may propose any amendments to the Customer Council Charter. However, such amendments will not be effective until they have been approved by both Sydney Water and the Customer Council.</p>		
5.1	Internal Dispute Resolution Process		
	<ul style="list-style-type: none"> (a) Sydney Water must establish and maintain internal complaint handling procedures for receiving, responding to and resolving Complaints by Customers and Consumers against Sydney Water. (b) The internal complaints handling procedures of Sydney Water must be based on the Australian Standard AS/ISO 10002: 2004 MOD Customer Satisfaction – Guidelines for Complaint Handling, as amended or replaced from time to time. (c) Sydney Water must make available to Customers and Consumers information concerning its internal complaints handling procedures which explains how to make a Complaint and how the complaint handling procedure works. (d) Sydney Water must provide information of the nature described in clause 5.1(c) to Customers through their quarterly, or other, bills at least once annually. 	SC	
5.2	External Dispute Resolution Scheme		
	<ul style="list-style-type: none"> (a) Sydney 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 Sydney Water and its Customers and between Sydney Water and Consumers. (b) Any industry based dispute resolution scheme so established by Sydney Water is subject to the Minister's approval. (c) Sydney Water must: <ul style="list-style-type: none"> (1) prepare a pamphlet that explains how the dispute resolution scheme operates and how it can be accessed; and (2) provide that pamphlet to Customers through their quarterly or other bills, at least once annually. 	SC	
6.1	Environment management		
	<ul style="list-style-type: none"> (a) Sydney Water must maintain an environmental management system certified to AS/NZS ISO 14001:2004 (as updated from time to time) to 	Audit	Audit to cover 6.1 (a), (c) & (d) only.

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	<p>manage environmental risk of its business and service delivery.</p> <p>(b) Sydney Water must prepare a Five Year Environment Plan in accordance with the environmental management system in clause 6.1(a) by 30 September 2010. The Five Year Environment Plan must:</p> <ol style="list-style-type: none"> (1) include Sydney Water's environmental objectives; (2) contain details of Sydney Water's program to meet the environmental objectives including targets and timetables; (3) endorse the principles of ecologically sustainable development; (4) be integrated into Sydney Water's business plans; and (5) be posted on Sydney Water's website for downloading by any person free of charge. A copy of the plan must be provided to any member of the public free of charge upon request. <p>(c) Sydney Water must complete an annual progress report in accordance with the Reporting Manual, outlining details of Sydney Water's progress with the environmental objectives, targets and timetable.</p> <p>(d) Each year Sydney Water must review the Five Year Environment Plan by consulting with DECCW and peak environmental non-governmental organisations to determine whether any changes to the Five Year Environment Plan are required in the subsequent year and the nature of those amendments.</p>		
6.2	Environment indicators		
	<p>Sydney Water must:</p> <ol style="list-style-type: none"> (a) monitor, record and compile data on the Environmental Performance Indicators; and (b) report on the Environmental Performance Indicators, <p>in accordance with its obligations under the Reporting Manual.</p>	Audit	Audit to also check calculation methods
7.1	Water Usage Level		
	<ol style="list-style-type: none"> (a) Sydney Water must reduce the quantity of Drinking Water it draws from all sources to a level of water usage equal to, or less than, 329 litres per person per day (the Water Usage Level) by 30 June 2011. (b) Thereafter, Sydney Water must continue to maintain the Water Usage Level for the remainder of the term of the Licence, to be measured at 30 June each year. (c) In calculating water usage for the purposes of the Water Usage Level, Sydney Water may make reasonable adjustments to account for the effects of weather on water usage using a methodology approved by IPART. (d) If Sydney Water fails to meet the Water Usage 	Audit	Audit 7.1 (b), (c) and (d) only.

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	<p>Level in a particular year, Sydney Water must demonstrate, to the satisfaction of IPART, that it would not have been reasonable to meet the Water Usage Level in that year.</p> <p>(e) Sydney Water must undertake a review of the water usage level as part of the end of term review of this Licence.</p>		
7.2	Water Leakage		
	<p>(a) Sydney Water must ensure that the level of water leakage from its Drinking Water supply system (the Water Leakage Level) does not exceed 105 megalitres per day.</p> <p>(b) When calculating the Water Leakage Level each year, Sydney Water must use the assumptions and methodology approved by IPART.</p> <p>(c) Sydney Water must complete a review by 31 December 2011 to determine the economic Water Leakage Level and submit a report on this review to IPART. The review must be conducted in a manner acceptable to IPART.</p> <p>(d) Following submission of the report from Sydney Water under clause 7.2(c), IPART must provide a recommendation to the Minister as to the economic Water Leakage Level.</p> <p>(e) Following review of the report submitted to IPART under clause 7.2(c) and consideration of IPART's recommendation under clause 7.2(d), the Minister may adjust the Water Leakage Level.</p>	Audit	<p>Audit 7.2 (a) & (b) only</p> <p>Note: The SWC reporting manual states that IPART has determined that measured leakage which does not exceed the range of 105±16ML/day constitutes compliance with the Water Leakage Level set out in clause 7.2(a) of the Operating Licence. Audit should be against this requirement.</p>
7.3	Water efficiency programs		
	<p>(a) Sydney Water must undertake and promote water efficiency programs.</p> <p>(b) Sydney Water must give due consideration to water efficiency and other water conservation measures as part of planning the future provision of its Services, including addressing water leakage.</p>	Audit	
7.4	Water recycling program (including stormwater)		
	<p>(a) Sydney Water must promote, foster and encourage the production and use of Recycled Water in the Area of Operations.</p> <p>(b) Sydney Water must:</p> <ol style="list-style-type: none"> (1) meet any target relating to the production and/or use of Recycled Water set by the Minister from time to time consistent with the objectives of the Metropolitan Water Plan; and (2) implement any particular Recycled Water schemes indicated by the Minister so as to meet any target in clause 7.4(b)(1) above. <p>(c) Sydney Water is not required to undertake any Recycled Water scheme where it is not financially viable to do so.</p>	Audit	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
7.5	Water Conservation Strategy Document and annual report		
	<p>(a) Sydney Water must prepare and submit to IPART and the Minister by 31 December 2010 a Five Year Water Conservation Strategy Document covering the term of the Licence. The Five Year Water Conservation Strategy Document must include details of:</p> <ol style="list-style-type: none"> (1) strategies relating to water leakage; (2) strategies relating to Recycled Water; (3) strategies relating to water efficiency; (4) how the water conservation strategies outlined in paragraphs (a)(1) – (a)(3) above contribute to the objectives and targets outlined in the Metropolitan Water Plan. <p>(b) The Five Year Water Conservation Strategy Document must provide an analysis of current and future programs and projects being undertaken, and expected to be undertaken, by Sydney Water. In particular, the Five Year Water Conservation Strategy Document must outline Sydney Water's water conservation objectives, targets and timetable for the entire term of the Licence.</p> <p>(c) Sydney Water must provide an annual report on its progress in implementing its water conservation strategies in accordance with the Reporting Manual. The annual report must include an explanation of how work done for the purpose of implementing the water conservation strategies undertaken during the year contribute to the objectives and targets outlined in the Metropolitan Water Plan.</p> <p>(d) The following documents must be placed on Sydney Water's website:</p> <ol style="list-style-type: none"> (1) the annual report on Sydney Water's progress in implementing its water conservation strategies required under clause 7.2(c); and (2) the Five Year Water Conservation Strategy Document. 	Audit	<p>Audit limited to 7.5 (c) and (d)</p>
9	Reporting and maintaining records		
	<p>(a) Sydney Water must comply with its reporting obligations set out in the Reporting Manual and must report to IPART in accordance with the Reporting Manual.</p> <p>(b) Sydney Water must provide to NSW Health a copy of any report referred to in the Reporting Manual relating to water quality monitoring.</p> <p>(c) Sydney Water must maintain record systems that are sufficient to enable it to accurately report in accordance with clause 9(a).</p>	Audit	<p>Audit to check calculation methods of a sample of IPART performance indicators.</p> <p>Indicators to be audited are in table 4 at the end of this scope.</p> <p>2013/14 audit to focus on Customer indicators.</p>
10.1	Request for information and access – IPART		
	<p>(a) Sydney Water must comply with any reasonable request by IPART for information relating to the performance by Sydney Water of its obligations</p>	SC	

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	<p>under clause 9.</p> <p>(b) As part of its obligations under clause 10.1(a), Sydney Water must provide IPART with physical and electronic access to the records kept by Sydney Water that enable it to comply with clause 9.</p> <p>(c) Sydney Water must provide IPART with such information as IPART reasonably requires to enable it to conduct any reviews of the Licence or obligations under the Licence as may be required by the Minister.</p>		
10.2	Request for information and access – NSW Health		
	Sydney Water must comply with any request by NSW Health for information relating to water quality. The information provided under this clause must be in the manner and form specified by NSW Health.	Audit	
11	Memoranda of Understanding		
	<p>(a) In accordance with the Act, Sydney Water must maintain a memorandum of understanding with each of the following:</p> <ol style="list-style-type: none"> (1) the Water Administration Ministerial Corporation (WAMC); (2) NSW Health; and (3) DECCW, for the term of the Licence. <p>(b) The purpose of a memorandum of understanding is to form the basis for co-operative relationships between the parties to the memorandum. In particular:</p> <ol style="list-style-type: none"> (1) the memorandum of understanding with NSW Health is to recognise the role of NSW Health in providing advice to the Government of NSW in relation to: <ol style="list-style-type: none"> (A) the management of the supply of Drinking Water to ensure it is safe to drink; and (B) the management of the supply of Recycled Water in respect of its fitness for purpose and effects on health; (2) the memorandum of understanding with DECCW is to recognise DECCW as the environmental regulator of the State and to commit Sydney Water to environmental obligations; and (3) the memorandum of understanding with the WAMC, is to recognise the role of WAMC in regulating water access, use and management and Sydney Water's right to use water vested in the WAMC. <p>(c) Clause 11(a) does not limit the persons or regulatory agencies with whom Sydney Water may have a memorandum of understanding.</p>	Audit	
12	End of term review of Licence		

Licence Clause	Operating Licence Obligations	Requirement 2013/14	Comments
	(b) Sydney Water must, on the direction of the Minister, make available to the public on request and for downloading from its website, and free of charge, the report prepared by the Licence Reviewer at the conclusion of the review.	NR	

Table 2 - Recommendations / Outstanding items from previous audits

Recommendation number	Operational issue (Licence reference where applicable)	IPART Recommendation to the Minister	Progress since 2012/13 Audit Reported in 31 March Report 2014	Guidance for 2013/14 Audit
2012/13 - 1	Recycled Water – clause 2.2	<p>Sydney Water's internal processes for ensuring compliance of customer's operating recycled water schemes (classified municipal use - restricted access and application, or municipal use - enhanced restrictions on access and application) to their contract should be strengthened. At the moment Sydney Water relies on the Annual Declarations from customers to manage the potential exposure risks or inappropriate uses of recycled water.</p> <ul style="list-style-type: none"> As a minimum, Annual Declarations forms need to be strengthened and all customers advised on how to properly complete their Annual Declarations. Where appropriate, customers are to re-submit declarations for 2012-13 that have not been completed properly. Additional procedures, such as site inspections for signage and usage controls, should also be implemented to promote ongoing safe operation. 	<p>Completed – March 2014</p> <p>Business Customer Services manage customer agreements for these schemes. The process around managing each scheme will include up to two site inspections per annum and completion of a Compliance Inspection Report (checklist) by a Sydney Water representative to ensure that the customer is meeting its obligations under the Annual Declaration. The Annual Declaration itself will not change. This process will be implemented by mid-March 2014.</p> <p>Sydney Water will provide guidance to customers in the completion of annual declaration forms as required.</p> <p>Customers who had not completed their declarations correctly have been required to resubmit them.</p>	Audit to confirm recommendations have been satisfactorily resolved.
2012/13 - 2	Recycled Water – clause 2.2	<p>The Recycled Water Quality Management Plan should be updated to fully reflect how Sydney Water's Liverpool recycled water plant is configured and how it is achieving breakpoint chlorination. It also needs to specify target limits, as well as critical limits. This should be given to NSW Health for</p>	<p>Planned completion date – June 2014</p> <p>The modifications to the plant are not yet fully commissioned and thus the original arrangements are still in place. Review of the current Recycled Water Management Plan has commenced with a detailed site</p>	Audit to confirm recommendations have been satisfactorily resolved.

Recommendation number	Operational issue (Licence reference where applicable)	IPART Recommendation to the Minister	Progress since 2012/13 Audit Reported in 31 March Report 2014	Guidance for 2013/14 Audit
		endorsement.	familiarisation visit. The plant upgrade changes will be reviewed and the plan adjusted as required and is expected to be completed by June 2014.	
2012/13 - 3	Recycled Water – clause 2.2	Following the treatment plant verification program, the Recycled Water Quality Management Plans should be reviewed and updated, where appropriate, and submitted to NSW Health for endorsement.	<p>Review program drafted - March 2014. All RWQMPs reviewed and submitted to NSW Health to be completed by March 2018.</p> <p>A systematic review program for the Recycled Water Quality Management Plans is being prepared. The initial draft is expected by March to facilitate discussion of priorities & resourcing with internal stakeholders.</p> <p>The initial program is expected to allow a detailed review of each plan over the IPART pricing period (ie. a 4 year review cycle).</p>	Auditor to check progress and consult with NSW Health on their satisfaction with the program.

Table 3 Past site visits for Sydney Water

Audit year	Location	Facility
2012/13	Macarthur	Macarthur Water Filtration Plant
	Liverpool	Customer Service Centre
	Liverpool	Liverpool Recycling Plant
	West Hoxton	Priority Sewage Project
2011/12	Wollongong	Recycled Water Treatment Plant
	Woronora	Water Filtration Plant
	Heathcote	Reservoir
2010/11	N/a	3 treated water reservoirs
	Orchard Hills	Water filtration plant
	Drummoyne	Mains flushing

Table 4 IPART Indicators to be audited in 2013/14

IPART Indicator No.	Indicator detail	Definitions
C 1	The percentage of complaints resolved within 10 business days	<p>Complaint is defined in AS ISO 10002-2006 or the most recent update of that standard. This AS ISO defines a complaint as an expression of dissatisfaction made to an organisation, related to its products, or the complaints-handling process itself, where a response or resolution is explicitly or implicitly expected. The following examples are intended to provide some clarity to this definition.</p> <ul style="list-style-type: none"> - A contact requesting information is not a complaint. - A contact reporting a service difficulty or fault is not a complaint and these contacts are recorded separately. - A contact expressing dissatisfaction with repeat service difficulties and faults is a complaint. - A contact where a credit adjustment on the account has been made due to a meter misread is a complaint. - A contact that results in a water quality issue is a complaint (ie, due to particles, discolouration, smell, taste, or a health issue). - A contact that results from an internal sewage overflow is a complaint. - Any Civil actions taken through a court for loss or damage arising from the water utility's performance under the Customer Contract is a complaint. - Complaints regarding repeat service difficulties or faults where they are from separate customers arising from the same cause, are counted as separate complaints. - More than one complaint from the same customer arising from the same cause are reported separately. - A complaint that is registered with EWON is a corporation complaint. - A contact regarding a matter that is not the responsibility of the Corporation is not recorded as a complaint. - A contact regarding flooding the water utility's Stormwater are

IPART Indicator No.	Indicator detail	Definitions
		<p>considered to be a complaint.</p> <p>Confirmed Low Water Pressure customer complaint means a complaint where there is known gauged data for a customer's complaint property at the same time and day as the customer contact.</p> <p>Unconfirmed Low Water Pressure customer complaint means all low water pressure customer complaints that are not confirmed customer complaints.</p> <p>Property is defined in I 1.</p> <p>Resolution of a complaint means that:</p> <ol style="list-style-type: none"> the complaint is resolved to a customer's satisfaction, or the customer is provided with an explanation as to why no further action is proposed in relation to the complaint, or the customer is provided with a date when the issue will be resolved if the complaint is relating to future planned operational or capital works.
C 2	Percent of calls abandoned	<p>Customer means any person who is taken to have entered into a Customer Contract with the water utility.</p> <p>A metered account refers to water usage metered account, which is billed based on volume. If a property has multiple meters and each metered account receives a separate bill based on a meter read, these should be reported as separate metered accounts for the purposes of this indicator. If a property has multiple meters and a single account is issued due to common ownership, the meters will also be treated as separate metered accounts for the purposes of this indicator.</p> <p>A customer meter read is one, which is provided by the customer to the utility.</p> <p>A business meter read is one taken by the utility or its contractor.</p> <p>An actual meter read is one taken by the water utility or its contractor or the customer (ie, includes both a customer meter read and a business meter read).</p>
C 3	Percent of metered accounts of customers that receive a bill not based on a business meter read for one year.	
C 4	Number per 1000 properties of contacts received by water utility that are requests for installment or deferred payment plans	
C 5 (S))	The total number of residential customers with continuing installment plans with durations greater than 3 months.	
C 6 (S)	The total number of non-residential customers with continuing installment plans with durations greater than 3 months.	
C 7	Percent of residential customers on installment plans	<p>Property is defined in I 1.</p> <p>Instalment Plan is a mutual agreement, which results in an outstanding debt being paid in full by a given date through a schedule of regular payments.</p> <p>Deferred payment plan refers to an arrangement between customers and the water utility for the deferred payment of outstanding service charges.</p> <p>Residential customer means a customer who: owns real property which is used as a principal place of residence.</p> <p>Non-Residential customer means all properties not classified as a residential customer.</p>
C 8	Percent of non-residential customers on installment plans	

IPART Indicator No.	Indicator detail	Definitions
C 9	Number of customers receiving payment assistance vouchers or payment assistance scheme credits.	<p>Payment assistance vouchers are accountable documents handled through designated charity organisation to provide assistance to hardship-affected customers.</p> <p>A payment assistance credit is a specified dollar value of emergency assistance allocated to the customers' account when they are unable to pay their water bill due to a financial crisis.</p>
C 10	Value of payment assistance vouchers or payment assistance scheme credits provided to customers	
C 11	The total number of residential customers disconnected for non-payment of amounts owed to the utility.	<p>Residential customer and Non-Residential customer definitions as per IPART C 8.</p> <p>Disconnection means the stopping (either temporarily or permanently) of water supply to a customer's property.</p> <p>Flow Restriction means a direct intervention in the water supply system by the water utility in order to reduce flow to a customer's property.</p>
C 12	The total number of non-residential customers disconnected for non-payment of amounts owed to the utility.	
C 13	Total number of residential customers on whom water flow restrictions have been imposed	
C 14	Total number of non-residential customers on whom water flow restrictions have been imposed	

C | Operational audit report 2013/14 – Sydney Water



IPART

Sydney Water Corporation Operational Audit 2013-14 Audit Report

November 2014

Executive Summary

GHD Pty Ltd (GHD) has conducted a detailed audit of Sydney Water's compliance against nominated clauses of its Operating Licence for the 2013-14 year (ending 30 June 2014) on behalf of the Independent Pricing and Regulatory Tribunal of NSW (IPART). This report documents the findings of our audit.

Audit opinion

In forming our audit opinion we confirm that:

- We have seen sufficient evidence on which to base our conclusions
- Our audit findings accurately reflect our professional opinion
- We have noted the requirements of the Audit Guideline – Public Water Utilities, IPART, July 2014, and the audit deed when conducting the audit, determining audit findings and preparing the report
- The audit findings have not been unduly influenced by Sydney Water and/or any of its associates.

Overall performance

Sydney Water has managed its resources in 2013-14 to achieve the following compliance levels in relation to its Operating Licence, as shown in Table ES1.

Table ES1 **Summary of compliance**

Clause	Description	Compliance Grade	
2.1	Drinking Water	Full	
2.2	Recycled water (including stormwater)	High	Compliance
3.1.1	Managing assets	Full	
3.1.2	Asset management framework	Full	
3.3.1	Water pressure standard	Full	
3.3.2	Water continuity standard	Full	
3.3.3	Uncontrolled sewage overflow	Full	
3.4	Service quality	Full	
3.5	Main breaks and leaks	Full	
3.6	Priority Sewerage program	Full	
4.4	Customer hardship	Full	
4.5.1	Customer Council	Full	
6.1	Environmental management	Full	
6.2	Environmental performance indicators	Full	

Clause	Description	Compliance Grade
7.1	Water usage	Full
7.2	Water leakage	Full
7.3	Water efficiency	Full
7.4	Recycled water production	Full
7.5	Five Year Water Conservation Strategy	Full
9	Reporting manual	Full
10.2	NSW Health requests	Full
11	Memorandum of understanding	Full

Findings and recommendations by Licence Part

Overall, Sydney Water performed very well against the audited clauses. Recommendations in relation to recycled water have been made.

Water quality – Drinking water quality

For the period 1 July 2013 to 30 June 2014 Sydney Water managed drinking water quality in accordance with the Operating Licence requirement. All of the 13 water delivery systems fully complied with the Australian Drinking Water Guidelines (2011) health long term compliance measures. Incidents were well managed, communicated and reported and improvement can be made in debrief action follow-up. Customers were not unduly impacted by performance matters.

Recommendations – Drinking water quality

There are no recommendations relating to this Clause.

Water quality – Recycled water quality

Sydney Water has achieved High Compliance in meeting its licence requirements. Sydney Water manages 15 recycled water schemes, and more are being commissioned. Corporate and Scheme Specific Recycled Water Quality Management Plans have been developed in accordance with the 12 Elements of the AGWR. These Plans are undergoing a rolling four-year program of review, which will update each Element. It is the auditor's opinion that a more timely program of review would further demonstrate Sydney Water's commitment to 2 of its 3 stated principal objectives, being: 'to protect public health' and 'to protect the environment'.¹

NSW Health confirms satisfaction with the Plans submitted. NSW Health has provided approval of the plans as meeting the requirements of the *Australian Guidelines for Water Recycling*, 2006. NSW Health confirms satisfaction with the four-year program of review and submission. NSW Health advises that compliance reporting through the Joint Operational Group Meetings, the Quarterly Recycled Water Quality Monitoring Report and recycled water incident reports demonstrates that implementation of the AGWR is providing for protection of public health and the environment.

Elements 10, 11 and 12 of the AGWR intend that there is an ongoing demonstrated, documented and implemented commitment to document control, currency, evaluation of results and audit, as well as frequent review and continual improvement. This is to be supported by a

¹ <http://www.sydneywater.com.au/SW/about-us/our-organisation/who-we-are/index.htm>

demonstrated and documented commitment from executive and senior management. In this manner, implementation of Plans can be demonstrated to meet the AGWR.

It is the auditor's opinion that the intention of the AGWR is not met as most Plans and Elements are not current and have not been updated as intended, over successive operating licence audit periods.

Recycled water quality monitoring outcomes provide a level of assurance that public health and environmental risk was protected during the audit period.

Progress has been made on the previous audit recommendations and there is a program in place for completion of site end user inspections.

Recommendations – Recycled water quality

RW-2014| 1

It is recommended that the review and update of Recycled Water Quality Management Plans that is being implemented via the four-year rolling program be audited for progress in both documentation development and scheme specific implementation.

RW-2014| 2

It is recommended that the Site Inspection Checklists be updated to include the names and contacts details of the inspector and 'inspectee' and note that date and conditions during the inspection. That a number of site inspection checklists are audited and field verified during the next audit period.

RW-2014| 3

It is recommended that the next audit period consider a site verification audit of the Recycled Water Quality Management Plan for the Stonecutters Ridge scheme.

Infrastructure performance

Site inspections of assets in the South West Growth Centres, including the West Camden Water Recycling Plant, the Warragamba Water Filtration Plant and a new 750 mm water main at Richardson Road in Oran Park confirmed that Sydney Water is managing assets in accordance with the Asset Management Framework.

The Audit found that Sydney Water continues to maintain and implement an asset management system across all asset classes and has commenced projects to refine the accuracy of the data used in the Maximo data base, used to monitor and maintain the assets under management. Sydney Water is tracking information on assets from asset class to the asset portfolio area and is improving the internal procedures applied to review asset performance by expanding the criteria used and recorded.

The Glenfield Sewage Overflow Incident (22 November 2013) was a notable event where the asset management framework was tested. Critical assets were not available for fast deployment, and a range of interim measures were deployed to mitigate a sewage overflow to the George's River. During the incident debrief a range of issues to rectify were recognised. Critical spare and assistance equipment was difficult to access and such equipment should be retained as critical equipment (eg – overhead crane / pumps with correct head and hosing). It was noted that these recommendations and actions have not been implemented almost 12 months since the event occurred. More timely implementation of actions would mitigate risk in future events.

Full Compliance was awarded to asset management in accordance with the asset management framework.

Sydney Water demonstrated Full Compliance with all audited requirements for performance standards covering water pressure, water continuity, sewage overflows and response time for water main breaks.

The Audit assessed and found that in 2013-2014, Sydney Water provided wastewater services to lots in Wilton, Douglas Park, West Hoxton, Bargo, Buxton and Cowan as required under Clause 3.6 of the Operating Licence, with temporary measures available at Wilton while construction and commissioning activities are being completed. This, coupled with the evidence that Sydney Water is proceeding to program for delivery of further wastewater services to Galston and Glenorie has supported the finding of Full Compliance for the Priority Sewerage Program.

Recommendations – Infrastructure performance

There are no recommendations relating to these Clauses.

Customer and consumer rights

Sydney Water fully complied with the requirements of all clauses audited for customer and consumer rights.

Sydney Water demonstrated a comprehensive range of processes supported by a suite of documents in place to address issues such as customer hardship, debt, water flow restriction and disconnection for non-payment. In addition, a Customer Council works effectively, allowing consumer representatives to engage with Sydney Water on these matters.

Recommendations – Customer and consumer rights

There are no recommendations relating to these Clauses.

Environment – indicators and management

Sydney Water has provided sufficient evidence to be assessed as having demonstrated 'Full Compliance' with the requirements of Clauses 6.1 a, 6.1 c, 6.1 d, 6.2 a and 6.2 b.

The Sydney Water Environmental Management System (EMS) is certified by a 3rd party auditor every year (a surveillance audit) and every three years, a full recertification audit is conducted.

Annual reporting is done for the progress of Sydney Water's environmental objectives and IPART Environmental Indicators.

Each year, as part of the EMS review process, any new stakeholders are identified and placed onto the contact list. This review takes into account all business divisions and is driven by the need to meet ISO 14001 requirements.

A sample of the IPART indicators was assessed to determine compliance with Clause 6.2 and to check calculation methods. Each indicator has its own method of data monitoring, recording, compilation and calculation.

The data collation and calculation of the Environmental Performance Indicators are audited annually by a third party auditing organisation (currently Net Balance) and their findings are summarised in each Folio of Progress.

Recommendations – Environment – indicators and management

There are no recommendations relating to these Clauses.

Water conservation

Sydney Water fully complied with the requirements of all clauses audited for water conservation.

Sydney Water's product water meets usage and leakage targets and uses several avenues to promote water efficiency which reached a significant proportion of its customer base and achieve usage targets.

There are opportunities to improve document management processes. It was noted that the process used to validate the water usage figure could be streamlined as the current process appears to be disjointed.

Recommendations – Licence and indicators

There are no recommendations relating to these Clauses.

Reporting and maintaining records

Reporting was performed in accordance with the Reporting Manual for Sydney Water Corporation June 2013 (the Reporting Manual) with respect to prescribed deliverables and timeliness. The accuracy and reliability of the reported information, as assessed through a review of the indicators, was considered to be based on sound records with high accuracy.

Recommendations – Reporting and maintaining records

There are no recommendations relating to these Clauses.

Request for information and access

The evidence provided indicates that NSW Health is satisfied that Sydney Water has met its obligations under the Operating Licence and Memorandum of Understanding (MOU).

Recommendations – Request for information and access

There are no recommendations relating to these Clauses.

Memoranda of understanding

Appropriate and current MOU are maintained with the relevant entities in accordance with Clause 11. These are primarily activated via the Joint Operational Group and Strategic Liaison Group meetings.

Recommendations – Memoranda of understanding

There are no recommendations relating to these Clauses.

Abbreviations and acronyms

Abbreviation/Acronym	Description
Act	Sydney Water Act, 1994 (NSW).
ADWG (2011)	Australian Drinking Water Guidelines (2011), National Health and Medical Research Council and Natural Resource Management Ministerial Council
AGWR (2006)	Australian Guidelines for Water Recycling (2006), The Environment Protection and Heritage Council, the Natural Resources Management Ministerial Council and the National Health and Medical Research Council.
ALD	Active Leak Detection
AOMS	Assets and Operations Maintenance System
AMF	Asset Management Framework
AS	Australian Standard
AWQC	Australian Water Quality Centre
BCR	Business Customer Rep
BI	Business Intelligence Provides staff access to Sydney Water's Enterprise Data Warehouse (EDW). The EDW gathers information from various Sydney Water operational systems for analysis and reporting.
BOO	Build Own Operate
BMIS	Business Management Information System Sydney Water's Lotus Notes interface to many of the strategic and operational management systems.
Capex	Capital Expenditure
C/G	Cryptosporidium and Giardia
CCP	Critical Control Point
CCTV	Closed Circuit Television
CIS	Customer Information System
CMS	Complaints Management System
CSIRO	Commonwealth Scientific and Industrial Research Organisation
CPI	Consumers Price Index
CWM	Critical Water Main
DA	Development Application
DAL	Department of Analytical Laboratories (Lidcombe)
DEC	Former Department of Environment and Conservation – now OEH
DECC	Former Department of Environment and Climate Change – now OEH
DECCW	Former Department of Environment, Climate Change and Water – now OEH
DEUS	Former Department of Energy, Utilities and Sustainability – covered part of the former DLWC
DLWC	Former Department of Land and Water Conservation (NSW) then changed to DWE
DIP	Data Integrity Project
DIPNR	Former Department of Infrastructure, Planning and Natural Resources (NSW) – now covered by Department of Planning, OEH, NSW Office of Water (NOW) and Department of Industry and Investment NSW
DWE	Department of Water and Energy – now covered by NSW Office of Water (NOW)
DWT	Drinking Water

Abbreviation/Acronym	Description
ELL	Economic Level of Leakage
EMP	Environmental Management Plan
EPA	Environment Protection Authority (NSW)
EPPM	Enterprise Program Portfolio Management
ESD	Ecologically Sustainable Development
EWON	Energy and Water Ombudsman NSW
FMECA	Failure Mode Effects and Criticality Analysis
FRC	Free Residual Chlorine
FRM	Field Resource Management system
GEMP	Government Energy Management Plan
GIS	Geographical Information Systems
GL	Gigalitre
JOG	Joint Operational Group
Sydney Water, SWC	Sydney Water Corporation
HPC	Heterotrophic Plate Count bacteria
Hydra	Sydney Water's corporate Geographic Information System (GIS). It is a seamless spatial database of land, services, system and environmental information covering the entire area of operations.
IICATS	Integrated instrumentation, control, automation and telemetry system IICATS is the system that monitors and controls all of Sydney Water's water and wastewater network systems.
IOP	Interim Operating Plan
IPART	Independent Pricing and Regulatory Tribunal (NSW)
ISO	International Standards Organisation
IT	Information Technology
JOG	Joint Organisation Group
JV	Joint Venture
kL	Kilolitre (1 thousand litres)
km	Kilometre
LRMC	Long Run Marginal Cost
LRV	Log Reduction Value
Maximo	Maximo manages all Sydney Water operational assets and their life-cycles by enabling planning, long-term strategic asset maintenance and replacement of critical assets. Most commonly used for creating work orders to manage planned and unplanned maintenance of assets and the inventory and tools needed to support the work.
ML	Megalitre (1 million litres)
MOU	Memorandum of Understanding
MNF	Minimum Night Flows
M&R	Monitoring and Reporting
NATA	National Association of Testing Authorities
NOM	Natural Organic Matter
NOW	NSW Office of Water
NPR	National Performance Report (published by the National Water Commission and the parties to the National Water Initiative).
NSW Health	NSW Department of Health

Abbreviation/Acronym	Description
OEH	Office of Environment and Heritage (formerly DECCW, the NSW Environmental Regulator)
Opex	Operational Expenditure
pa	Per Annum
PAC	Powdered Activated Carbon
pH	A measure of the acidity of a solution related to the concentration of hydrogen ions
PIAC	Public Interest Advocacy Centre
PRV	Pressure Reduction Valve
QA	Quality Assurance
RFQ	Request for Scope of Work and Quote (sent by IPART on 5 July 2011)
RWT	Recycled Water
SCA	Sydney Catchment Authority
SCADA	Supervisory Control and Data Acquisition
SEDA	Sustainable Energy Development Authority
SLC	Strategic Liaison Committee
SLG	Strategic Liaison Group
SMART	SCADA Maintenance And Renewals Team
SRMC	Short Run Marginal Cost
SOM	Standard Operating Manuals
STP	Sewage Treatment Plant
SWIRL	Sydney Water Incident Recording and Learning system
TC	Total Chlorine
TOC	Total Organic Carbon
WFP	Water Filtration Plant
WML	Water Management Licence
WO	Work Order
WPIMS	Water Product Integrated Management System
WRAPP	Waste Reduction and Purchasing Policy
WSAA	Water Services Association of Australia
WRP	Water Recycling Plant
WTP	Water Treatment Plant
WQ	Water Quality

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Appendix H	Detailed audit findings – Memoranda of understanding

1. Introduction

This document presents the Audit Report for the Sydney Water Corporation (Sydney Water) Operating Licence Audit 2013-14. The Independent Pricing and Regulatory Tribunal (IPART) are responsible for administering the Operating Licence for Sydney Water. In this role, IPART must ensure that an operational audit is undertaken. IPART is also responsible to ensure an audit of a sample of NWI indicators is undertaken.

IPART engaged GHD to undertake the Audit, the purpose of which is to assist IPART in assessing the performance of Sydney Water against the Operating Licence. This Audit Report presents the findings of the Audit.

This report has been prepared by GHD for IPART and may only be used and relied on by IPART for the agreed purpose, which is to inform IPART of the audit plan for the Operating Licence Audit.

GHD otherwise disclaims responsibility to any person other than IPART arising in connection with this report. GHD also excludes implied warranties and conditions, to the extent legally permissible.

The services undertaken by GHD in connection with preparing this report were limited to those specifically detailed in the report and are subject to the scope limitations set out in the report.

The opinions, conclusions and any recommendations in this report are based on conditions encountered and information reviewed at the date of preparation of the report. GHD has no responsibility or obligation to update this report to account for events or changes occurring subsequent to the date that the report was prepared.

The opinions, conclusions and any recommendations in this report are based on assumptions made by GHD described in this report. GHD disclaims liability arising from any of the assumptions being incorrect.

1.1 Objectives

The objective of this audit is to provide an independent assessment of Sydney Water's compliance with the obligations of its Operating Licence for the period 1 July 2013 to 30 June 2014.

1.2 Audit method

1.2.1 Audit scope

The scope of the auditing for the Sydney Water Operating Licence Audit is as specified in the Request For Quote - Sydney Water Operating Licence Audit 2013-14 IPART, 2014, and in accordance with the Public Water Utilities Audit Guideline IPART, 2014.

The Audit covers drinking and recycled water quality, assets operation and management, retail supply, and environmental aspects of operation. Table 1-1 indicate the clauses that were audited for each audit category.

Table 1-1 Audited clauses 2013-14 Operational Audit Sydney Water

Clause	Sub-clause	Description
2.1	a b d f	Drinking Water
2.2	a b c	Recycled Water
3.1.1		Managing Assets
3.1.2	a b c d e	Managing Assets
3.3.1	a b	Managing Assets
3.3.2	a b	Managing Assets
3.3.3	a b	Managing Assets
3.4	a b	Managing Assets
3.5	a	Managing Assets
3.6	a e f	Managing Assets
4.4	a b c d e	Retail Supply
4.5.1	a b c d e	Retail Supply
7.1	b c d	Retail Supply
7.2	a b	Retail Supply
7.3	a b	Retail Supply
7.4	a b c	Retail Supply
7.5	a b c d	Retail Supply
6.1	a c d	Environmental Management
6.2	a b	Environmental Management
9	a b c	Licence and indicators
9 IPART	C1-C13	Licence and indicators
10.2		Licence and indicators
11	a b c	Licence and indicators
NWI	C2, C4, C8, C13-19	Licence and indicators

1.2.2 Audit standard

The audit was conducted to the following standards:

- *Australian Auditing Standard ISO 19011:2011 – Guidelines for Auditing Management Systems*
- *Australian Standard ISO14011 - Guidelines for Environmental Auditing.*

ISO 19011 and 14011 provide a systematic approach to define the scope, plan, interpret licence conditions, collect audit evidence, objectively assess the evidence, and report in a clear and accurate manner. It also provides Sydney Water and IPART with assurance that the audit was conducted in accordance with a recognised audit protocol.

1.2.3 Audit steps

Opening meeting

An opening and closing meeting was held. The opening meeting set the scene for the audit, ensuring that all necessary arrangements were in place, establish protocols for the audit, and set the timeframe for undertaking auditing and reporting activities.

The agenda included:

- Confirmation of the audit scope
- GHD audit team structure and audit methodology
- Key personnel and contacts from both organisations
- Agreed timeframes for interviews, and the process for obtaining further documents
- Engendering a transparent and cooperative relationship.

Document review

Prior to the audit interviews, GHD made a formal request for information (RFI) so that Sydney Water could collate and provide supporting documentary evidence to assess compliance.

GHD reviewed all provided information, and determined:

- Whether sufficient documentary evidence had been provided to make an assessment of compliance
- Clarifications and further verification that may be required at the interviews.

All documents reviewed were recorded in the standard audit log and the record submitted with the final detailed audit findings.

Interviews with key personnel

The primary objective of the interviews was to clarify, confirm and verify GHD's interpretation of the documentation already provided. Sydney Water was provided an opportunity to present an overview of compliance and raise other pertinent matters. GHD provided an acknowledgement of evidence reviewed and an overview of the key areas to be addressed at the interviews.

The interviews with Sydney Water staff were conducted in an independent, transparent and conciliatory manner encouraging open and frank disclosure and confidence in a fair and objective audit process.

Field visit

A field visit was conducted to compliment the audit process. The field visit supported the assessment of the drinking water, recycled water and asset management clauses. The sites visited were Warragamba WFP, West Camden WRP and the West Hoxton growth area. These sites were selected as being relevant to the audit scope.

Closing meeting

The closing meeting highlighted any further outstanding areas that need to be closed. GHD worked with Sydney Water and IPART to ensure that the root cause for any outstanding issues were understood and the expectation of what was required in order to close them out was clearly articulated.

Audit guideline steps

- Consultation with NSW Health on the 05/08/14
- Issue of an audit questionnaire to Sydney Water on the 08/08/14
- Receipt of the questionnaire response from Sydney Water on the 01/09/14. The response was accompanied by a Statement of Compliance from Sydney Water
- On-site interviews of relevant Sydney Water staff from the 08/09/14
- A site visit was undertaken on the 10/09/14
- A draft audit report was issued to Sydney Water and IPART on the 30/09/14
- A second draft report which addressed comments from Sydney Water and IPART was issued on the 31/10/14
- A final draft report addressing matters raised by Sydney Water and IPART was issued on the 24/11/14
- Issue of a final report on the 26/11/14.

1.2.4 Audit team

Dr Therese Flapper was the overall Project Director and Lead Auditor. The Audit team responsible for each Clause is identified in Table 1-2. The audit team panel classifications are:

- Dr Therese Flapper – **Lead Auditor** Licence and Compliance, Drinking Water Quality, Recycled Water Quality, Sewage Management, **Auditor** Environmental Management
- Dr Greg Leslie – **Auditor and Area Specialist** Infrastructure Performance
- Danielle Baker – **Auditor** Licence and Compliance **Area Specialist** Drinking Water Quality, Recycled Water Quality, Environmental Management.
- Patty Chier – **Auditor** Environmental Management **Area Specialist** Drinking Water Quality, Recycled Water Quality
- Ian McKinnon - **Lead Auditor** Retail Supply
- Asoka Wijeratne - **Lead Auditor** Sewage Management **Area Specialist** Retail Supply, Infrastructure Performance.

Table 1-2 Audit team

Audit Clauses	Lead Auditor / Auditor	Team
2.1, 2.2 9, 10.2, 11	Therese Flapper	Danielle Baker
3.1.1, 3.1.2 3.3.1, 3.3.2, 3.3.3 3.4, 3.5, 3.6	Greg Leslie	Therese Flapper
4.5, 4.5.1 7.1, 7.2, 7.3, 7.4, 7.5	Ian McKinnon	Asoka Wijeratne
6.1, 6.2	Patty Chier	
NWI / IPART indicators	Danielle Baker	

1.2.5 Audit grades

The audit was conducted to the *IPART Audit Guideline Public Water Utilities, July 2014*. In accordance with this, the Audit Grade is assigned at a sub-clause level, as per Table 1-3 below.

Table 1-3 Audit grades

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

1.3 Regulatory regime

Sydney Water's water supply and wastewater service operations are regulated by various State Government agencies as outlined below:

- The NSW Government, which grants Sydney Water's Operating Licence under the Sydney Water Act 1994
- The Independent Pricing and Regulatory Tribunal (IPART), which recommends the conditions of Sydney Water's Operating Licence to the NSW Government, conducts periodic audits of performance against the Operating Licence and establishes Sydney Water's prices for providing services
- NSW Health, which regulates water quality in NSW via the Public Health Act. Sydney Water has entered into a Memorandum of Understanding with NSW Health to facilitate effective interaction on water quality management issues
- The NSW Office of Water (NOW), which regulates water use in NSW
- The Environment Protection Authority (EPA), which regulates environmental matters in NSW
- Sydney Water's first Operating Licence was issued in 1995 for a period of five years. The current Licence was issued in 2010 and applies until 30 June 2015. The Operating Licence specifies the minimum standards of service or performance that must be met by Sydney Water in relation to its operations.

A copy of the Licence is available from Sydney Water's website:

http://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/mdq1/~edisp/dd_045161.pdf

Part 8 of the Licence provides that IPART (or its appointee) may undertake an operational audit of Sydney Water's performance against the requirements of the Licence each year. The performance of Sydney Water for 2013-14 was audited against the specific requirements of the Licence identified by IPART in its audit scope.

1.4 Quality assurance

GHD operates under a Practice Quality Management System that is certified to AS/NZS ISO 9001:2008. The GHD quality manual and procedures provide a structured approach to quality management for all project work. For this project, Quality Assurance was an integral part of the GHD Audit Plan and work program. As part of the quality assurance process a review schedule was implemented for the audit that included review and approval of each stage of the project documentation from questionnaires through to the audit report. All work was independently reviewed by an audit team member other than the primary author.

2. Water quality

2.1 Drinking water

2.1.1 Clauses audited

Licence clause	Operating licence obligations
2.1	Drinking Water
(a)	Sydney Water must manage Drinking Water quality to the satisfaction of NSW Health in accordance with the Australian Drinking Water Guidelines (unless NSW Health specifies otherwise).
(b)	Sydney Water must prepare, to the satisfaction of NSW Health, a Five Year Drinking Water Quality Management Plan covering the entire five year term of the Licence. The Five Year Drinking Water Quality Management Plan must be in operation by 31 December 2010 and include strategies for the comprehensive management of the quality of Drinking Water in Sydney Water's water supply system in accordance with the Australian Drinking Water Guidelines (unless NSW Health specifies otherwise).
(d)	Sydney Water is to implement procedures and processes for the appropriate management of the Drinking Water supply system under its control in light of its knowledge of the entire Drinking Water supply system (from the source to the consumer). Sydney Water must have adequate systems and processes in place to manage Drinking Water quality taking into account planning and risk management and their implementation across the entire Drinking Water supply system.
(f)	Sydney Water must report on Drinking Water quality monitoring in the manner and form outlined in the Reporting Manual.

2.1.2 Summary of findings

For the period 1 July 2013 to 30 June 2014 Sydney Water managed drinking water quality in accordance with the Operating Licence requirement. All of the 13 water delivery systems fully complied with the Australian Drinking Water Guidelines (2011) (ADWG) health long term compliance measures. Incidents were well managed, communicated and reported, although incident debrief actions could be better followed up. Customers were not unduly impacted by performance matters.

Elements 2, 3, 5, 6 and 12 of the ADWG were reviewed in more detail. Drinking water related risk management is instilled in overall corporate risk management. Catchment to tap risks are developed and reviewed. Water filtration plant risks are documented and mitigated. CCPs are implemented in operations as 'triggers' for notifications and actions for adverse water quality events in the relevant SOP and Water Product Specification, as well as via alarm setpoints in SCADA. During the site verification of Warragamba Water Filtration Plant it was noted that a recent and detailed SCADA, electrical and instrumentation upgrade had taken place and was reaching full commissioning and handover. The SCADA alarms and setpoints, the associated site documented CCPs (the Water Product Specification), and the Triggers notifications and actions for adverse water quality were not completely aligned. Alignment is preferred such that there is a link between the documented CCP, the trigger SOP, the Water Product Specification and the SCADA to ensure public health risk is mitigated. It is understood that further update will be occurring as the new SCADA is fully on-boarded and the operators are trained, and the SOP updated. A substantial quantum of verification monitoring is conducted and reported upon. It is analysed and statistically reviewed on a routine basis. This includes biological, physical and chemical parameters for health and aesthetic value.

Exceptions were notified as per the requirements of the Drinking Water Quality Event Management Plan: Drinking Water Quality Management Plan. Incidents and follow up actions were recorded in the Sydney Water Incident Recording and Learnings System (SWIRL) which is accessed by NSW Health. Periodic water quality reporting to NSW Health occurs and includes exceptions. Incidents are noted and discussed at the Joint Operational Group meetings. Incident de-briefs are undertaken in a well-documented manner.

In August 2013, a joint exercise was undertaken with Sydney Catchment Authority and NSW Health for the management of a high turbidity event due to flooding. The incident de-brief noted a range of actions and recommendations for improvement. In November 2013, a high turbidity event (resulting from bushfire followed by large rain events) occurred at the Macarthur Water Filtration Plant. Actions and recommendations were developed as a component of the de-briefing, however their timely implementation was not followed through.

The strategies outlined in the Five Year Drinking Water Quality Management Plan and associated improvement actions are being implemented and reported appropriately. Water quality results for 2013-14 demonstrate that the Plan is effective in protecting public health.

The systems and processes that Sydney Water has in place are comprehensive and ensures that Sydney Water is well informed of the performance of its drinking water supply and is able to respond proactively to any trends, potential or actual incidents. It includes documented procedures for the planning, delivery and acceptance of new assets including reservoirs and reticulation networks. An appropriate risk based method, compliant with Element 2 of the ADWG is deployed and implemented from corporate to scheme and asset specific.

Sydney Water has complied with all requirements set out in the Reporting Manual, which meets the ADWG. A significant amount of verification and operational monitoring and reporting is undertaken. This is complimented by incident and alert notification reporting, which is highly automated. Reporting was conducted in a timely manner and appropriate to the satisfaction of NSW Health and in compliance with the ADWG.

It was observed that document control was not necessarily up to date for review status. Whilst the control issues were not substantive enough to warrant a change in compliance status, maintaining an appropriate frequency of review and document control supports Element 10 of the ADWG.

2.1.3 Recommendations

There are no recommendations for Drinking Water.

2.1.4 Opportunities for improvement

DW OFI-2014| 1

Sydney Water should introduce the critical control point, target and critical level terminology throughout its documentation. Sydney Water is encouraged to update the listing of summary target and critical limits in its Drinking Water Product Specifications document and incorporate the criteria included in its document Triggers, Notifications and Actions for Adverse Water Quality Results (SOP).

DW OFI-2014| 2

Sydney Water conducts well informed and detailed incident de-briefs and reviews, as well as reviews of scenarios. From these, a range of recommendations and actions are identified for development and implementation, assigned to agency and role, with dates for completion. The recommendations and actions from the Flooding Incident Mock Event (August 2013) and the Macarthur Water Filtration Plant Incident (November 2013) have not been implemented in a timely manner. Timely implementation of these recommendations and actions are necessary for Sydney Water to further mitigate risk. The risk to public health was not assessed as being substantially elevated since operator training and awareness, as well as responsiveness, is very strong. The actions noted were substantially of an improvement basis and not deemed as critical to a public health response. It is suggested that the actions be assigned due dates in a risk based manner, and that these dates be met. High risks should be expected to be actioned within 1 month and all actions within 3 months.

DW OFI-2014| 3

The protocol for changing the turbidity trigger during an incident should be determined for each catchment on a risk basis. This should be documented in agreement between Sydney Catchment Authority, NSW Health and Sydney Water. Bushfire and / or flooding represent reasonably likely scenarios for which such a protocol could be prepared prior to an incident being in progress.

DW OFI-2014| 4

Sydney Water could mitigate risk by timely update and training of operators of the Warragamba 'CCPs' implemented via the Water Product Specification, and in accordance with the recent SCADA and electrical / instrumentation upgrade.

DW OFI-2014| 5

Sydney Water would benefit from a wholly separate and reportable Improvement Plan for drinking water to show alignment across Element 1 to Element 12 of the ADWG.

DW OFI-2014| 6

Sydney Water will be deploying ozone for disinfection of mains. It is recommended that the next audit conduct a review of the procedures, training, monitoring and site verification of ozone disinfection of mains.

DW OFI-2014| 7

Sydney Water would benefit from improved document control associated with drinking water procedures and reporting to better demonstrate implementation of Element 10.

2.2 Recycled water

2.2.1 Clauses audited

Licence clause	Operating licence obligations
2.2	Recycled Water (including stormwater)
	Sydney Water must manage Recycled Water quality in accordance with:
(a)	the Australian Guidelines for Water Recycling (unless NSW Health specifies otherwise) to the satisfaction of NSW Health; and/or
(b)	any other guidelines specified by NSW Health to the satisfaction of IPART.
(c)	Sydney Water must report on Recycled Water quality monitoring in the manner and form outlined in the Reporting Manual.

2.2.2 Summary of findings

Sydney Water has achieved High Compliance in meeting its licence requirements. Sydney Water manages 15 recycled water schemes, and more are being commissioned. Corporate and Scheme Specific Recycled Water Quality Management Plans have been developed in accordance with the 12 Elements of the AGWR. These Plans are undergoing a rolling four-year program of review, which will update each Element. It is the auditor's opinion that a more timely program of review would further demonstrate Sydney Water's commitment to 2 of its 3 stated principal objectives, being: '*to protect public health*' and '*to protect the environment*'.²

NSW Health confirms satisfaction with the Plans submitted. NSW Health has provided approval of the plans as meeting the requirements of the *Australian Guidelines for Water Recycling*, 2006. NSW Health confirms satisfaction with the four-year program of review and submission. NSW Health advises that compliance reporting through the Joint Operational Group Meetings, the Quarterly Recycled Water Quality Monitoring Report and recycled water incident reports demonstrates that implementation of the AGWR is providing for protection of public health and the environment.

² <http://www.sydneywater.com.au/SW/about-us/our-organisation/who-we-are/index.htm>

Elements 10, 11 and 12 of the AGWR intend that there is an ongoing demonstrated, documented and implemented commitment to document control, currency, evaluation of results and audit, as well as frequent review and continual improvement. This is to be supported by a demonstrated and documented commitment from executive and senior management. In this manner, implementation of Plans can be demonstrated to meet the AGWR. It is the auditor's opinion that the intention of the AGWR is not met as most Plans and Elements are not current and have not been updated as intended, over successive operating licence audit periods.

Recycled water quality monitoring outcomes provides a level of assurance that public health and environmental risk was protected during the audit period.

Progress has been made on the previous audit recommendations and there is a program in place for completion of site end user inspections.

The Five-Year Recycled Water Quality Management Plan (RWQMP) is a strategic planning document. Its intent is to provide an overarching framework for the management of recycled water quality in Sydney Water. This plan provides the framework for the functional RWQMPs developed for each scheme. Joint Operational Group meetings are held and recycled water is addressed.

Each scheme Plan has been developed based on the stated end use, the level of treatment required, the planned asset arrangements, and existing performance data where available. Some further alignment is needed between customer controls in Recycled Water Quality Management Plans and Customer Agreements as details change over time. For the West Camden Recycled Water Quality Management Plan-Table ES 4 CCP 3 and CCP4 note site controls that are not noted in the Customer Agreement and there are controls listed in the End User Agreements not listed in the CCP Table. The recycled water quality is tied to the controls applied at site in order to support public safety. There is a public health risk where these controls are not applied and this responsibility sits with both the supplier (Sydney Water) and customer (end user) as these are relied upon for total LRV compliance.

The Critical Control Points (CCP) for West Camden, as noted in its Recycled Water Quality Management Plan, are different to those within the SCADA. Sydney Water operates the SCADA at narrower limits than the CCP band. This could lead to confusion during an alarm condition. It is noted that for chlorine disinfection, the CCP limit and SCADA are set for 0 mg/L as a minimum. It is more generally accepted to set the minimum at a level that ensures disinfection at all times. Validation of the chlorine disinfection Ct at West Camden has not been conducted and is underway. Chlorination is a primary control for bacteria and viruses. Validation of the tertiary filtration process has not been undertaken, which is a critical control to reduce protozoa and is likely to be undertaken during the scheduled review of the West Camden Recycled Water Quality Management Plan.

Verification monitoring is in place for all schemes as per the individual scheme RWQMPs and annual recycle water monitoring plan. Recycled water quality monitoring showed some exceedances across a range of parameters including *Cryptosporidium*, BOD, pH, *E. coli* and phosphorus. No exceedances were found to be of concern with regard to public health or environmental protection. For example the *Cryptosporidium* when detected was associated with a timeline where the UV was operating within its CCP and validated range, meaning that the pathogen would be considered inactivated. The BOD, pH and phosphorus were below longer term percentiles and represented single sample events.

An *E. coli* count of 1,700 orgs/100 mL was recorded, which exceeded the operating performance target of <1,000 orgs/100 mL. However, the year to date (audit period) 50thile count of *E. coli* in the recycled water supplied by Picton WRP (140 orgs/100 mL) complies with the annual operating performance target of <1,000 orgs/100 mL (50thile). As *E. coli* can indicate the presence of pathogens of acute effect, it is the auditor's opinion that relying on the 50thile is not appropriate for this parameter (although noted to be consistent with the currently endorsed RWQMP). It is noted that this is related to irrigation of a paddock and there is no substantive risk to human health exposure; however, consideration should be given to a maximum target, rather than applying a 50thile target.

Exception reporting is the focus and is provided on a scheme basis. The monitoring results are provided to the operating teams within Sydney Water, the various customers, and to NSW Health on a regular basis (normally quarterly). Any exceptions are identified, and the relevant operations staff notified immediately.

Sydney Water maintains systems and processes to ensure that the reporting obligations set out in the Reporting Manual are met.

2.2.3 Recommendations

RW-2014| 1

It is recommended that the review and update of Recycled Water Quality Management Plans that is being implemented via the four-year rolling program be audited for progress in both documentation development and scheme specific implementation.

RW-2014| 2

It is recommended that the Site Inspection Checklists be updated to include the names and contacts details of the inspector and 'inspectee' and note that date and conditions during the inspection. That a number of site inspection checklists are audited and field verified during the next audit period.

RW-2014| 3

It is recommended that the next audit period consider a site verification audit of the Recycled Water Quality Management Plan for the Stonecutters Ridge scheme.

2.2.4 Opportunities for improvement

RW OFI-2014| 1

The Rouse Hill reservoir CCPs for chlorine are considered not relevant when supplied with drinking water rather than recycled water. A protocol should be agreed, documented and implemented between Sydney Water and NSW Health for 'inactivating' this CCP when drinking water is in use and for transitioning to and from supply of recycled water, and thereby 'activating' the CCP. It is understood that only potable water may be supplied for long durations.

RW OFI-2014| 2

It is recommended that CCPs as listed in Scheme Specific Plans reflect the operating limits and operating actions taken across the ranges implemented to mitigate confusion in an alarm situation and to better demonstrate implementation of Element 3. Further, a low alarm set point of 0 mg/L for chlorine in treated chlorinated recycled water is not appropriate to ensure disinfection and should be raised.

RW OFI-2014| 3

Sydney Water would benefit from improved document control associated with recycled water procedures and reporting. Some version control and signature sign-off was not up to date.

RW OFI-2014| 4

Sydney Water and its recycled water customers would benefit from additional open reporting that is two-way. That is, improved frequency and form of reporting via Customer Agreements and associated with Annual Declarations. This can include updates on roles, contact details, responsibilities; customer controls; water quality data trend analysis and other changes to risk.

3. Infrastructure performance

3.1 Clauses audited

Licence clause	Operating licence obligations
3.1.1	Managing Assets
	Sydney Water must ensure that its Assets are managed consistently with the asset management framework described in clause 3.1.2.
3.1.2	Asset management framework
	Sydney Water's asset management framework must demonstrate:
	(a) robust and transparent methodologies for determining and prioritising licensing and other regulatory requirements and current and future service levels as well as identifying the infrastructure needed to achieve those service levels and requirements;
	(b) robust, transparent and consistent processes, practices and programs to ensure sustainable delivery of service levels and regulatory requirements, based on sound risk management, including:
	(c) robust and transparent decision making processes that balance acceptable risk with cost and service provision to achieve prudent, efficient and effective operating and capital investment;
	(d) an approach that achieves the lowest cost of service delivery through the effective life cycle management of the asset base; and
	(e) robust and transparent processes of review and continuous improvement in asset management.
3.3.1	Water Pressure Standard
	(a) Water Pressure Standard
	Sydney Water must ensure that no more than 6,000 Properties experience a Water Pressure Failure in a financial year in its Drinking Water supply system.
	(b) Water Pressure Failure
	(1) A Property is taken to have experienced a Water Pressure Failure at each of the following times: (A) when a person notifies Sydney Water that the Property has experienced a Water Pressure Failure and that Water Pressure Failure is confirmed by Sydney Water; or (B) when Sydney Water's systems identify that the Property has experienced a Water Pressure Failure. (2) A Property will not be taken to have experienced a Water Pressure Failure only because of a short term operational problem (such as a main break) which is remedied within 4 days of its occurrence or from abnormal demand (such as demand during fire fighting).
3.3.2	Water Continuity Standard
	(a) Water Continuity Standard
	Sydney Water must ensure that: (1) no more than 40,000 Properties experience an Unplanned Water Interruption exceeding 5 hours in a financial year; and (2) no more than 14,000 Properties experience 3 or more Unplanned Water Interruptions of more than 1 hour duration in a financial year, in its Drinking Water supply system.
	(b) Unplanned Water Interruption
	(1) In determining whether a Property experiences an Unplanned Water Interruption a best estimate is to be applied from the best available data, taking account of water pressure data where that data is available. (2) A Property is taken to have experienced a separate Unplanned Water Interruption for each period of 5 hours or more that the Unplanned Water Interruption exists.
3.3.3	Sewage Overflow Standard
	Sydney Water must ensure that:
	(a) no more than 14,000 Properties (other than Public Properties) experience an Uncontrolled Sewage Overflow in dry weather in a financial year; and

Licence clause	Operating licence obligations
	(b) no more than 175 Properties (other than Public Properties) experience 3 or more Uncontrolled Sewage Overflows in dry weather in a financial year.
3.4	Service quality and system performance indicators
	(a) Sydney Water must maintain record systems that are sufficient to enable it to measure accurately its performance against the Service Quality and System Performance Indicators.
	(b) In the case of any ambiguity in the definition or application of any indicators, IPART's interpretation or assessment of the indicators will prevail.
3.5	Response time for water main breaks
	(a) Sydney Water's response to water main breaks and leaks (in the trunk and reticulation components of Sydney Water's Drinking Water supply system between water treatment plants and a Property), as measured from the time Sydney Water receives notification of a break or leak to the time Sydney Water stops the loss of water, will be as follows: (1) Priority 6 breaks/leaks 90% of jobs within 3 hours (2) Priority 5 breaks/leaks 90% of jobs within 6 hours (3) Priority 4 breaks/leaks 90% of jobs within 5 days
3.6	Priority Sewerage Program
	(a) Sydney Water must continue with the planning and delivery of the Priority Sewerage Program such that wastewater services are provided to the requisite number of lots in the following areas by the dates specified below: (1) Wilton and Douglas Park by 30 June 2014 (2) West Hoxton by 30 June 2014 (3) Bargo and Buxton by 30 June 2014 (4) Cowan by 30 June 2014 (5) Galston and Glenorie by 30 June 2015
	(e) Should delays caused by consent authorities impair Sydney Water's ability to meet the timeframes set out in this clause 3.6, Sydney Water must write to the Minister to advise of the reasons for the delay.
	(f) Sydney Water must provide an annual report on its progress in implementing the Priority Sewerage Program to IPART in accordance with the Reporting manual.

3.2 Summary of findings

Infrastructure Performance

The Infrastructure Performance chapter details requirements for the management of assets and establishes performance standards for water pressure, water continuity, sewage overflows, response time for water main breaks and the Priority Sewerage Program. Sydney Water's performance on asset management and delivery of the Priority Sewerage Program has been subject to regular review, however, three years had elapsed since the infrastructure performance clauses were audited. Consequently, additional evidence was sought from Sydney Water for the 2011-2012 and the 2012-2013 audit period to identify any trends or changes in infrastructure performance.

Managing Assets

Site inspections of assets in the South West Growth Centres, including the West Camden Water Recycling Plant, the Warragamba Water Filtration Plant and a new 750 mm water main at Richardson Road in Oran Park confirmed that Sydney Water is managing assets in accordance with the Asset Management Framework.

West Camden Water Recycling Plant (WRP)

Sydney Water is rigorously and consistently applying the Asset Management Framework at the West Camden WRP. This was confirmed during a demonstration of the management of information through the asset management systems during routine Preventative Maintenance/Operation Level Inspection of the primary treatment (Maximo ref ST0028-10) and the tertiary filters (Maximo Ref ST0028-30). Features of the assets were located in the Maximo data base.

A treatment maintenance report current through to June 2014 was generated to identify history of the asset based on number of failures over the current licence period (2010-present), number of failures in real terms and as a percentage per maintainable unit for the current licence period, and comparison to most frequent failures over all locations of the plant with a commentary on the features of these assets. A review of a typical work order generated in Maximo found that work flow procedures include routine reviews with plant manager, plant maintenance representative, the area manager and the Mechanical/Electrical sub-contractors to improve the level of coordination and reduce the amount of overlap in resource allocation. The overall result has been an improvement in asset reliability using the existing systems and resources.

Warragamba Water Filtration Plant (WFP)

Sydney Water is rigorously and consistently applying the Asset Management Framework at Warragamba WFP. A business case was developed and reviewed for the installation of new assets associated with the upgrade of mechanical and electrical assets and the Supervisory Control. The business case was developed based on input from the operations team to address a performance issue (e.g. lack of redundancy/maintainability and implementation of new standards for electrical assets) using the asset renewal elements of the Asset Management Framework (AMF) for Water Treatment Plants. Sydney Water is following the procedure developed for operational review of the business case; review of technical specifications used to procure the new assets; procedures for interfacing JV through Factory Acceptance Testing, Site Acceptance Testing and Operational Handover. A review of the works program indicated that the upgrade is on track and includes scheduled tasks for review of installed assets via Project Implementation Reviews.

750 mm water main on Richardson Road Oran Park

Sydney Water is rigorously and consistently applying the Asset Management Framework on a new 750 mm water main in Oran Park. The site visit afforded the opportunity to review documentation on the design and construction of the new asset, coupled with a field demonstration of Hydra software, which provides information on the location and status of assets, which links back to the Maximo system. The documentation provided details on the implementation of the AMF for the management of contracts and contractors, particularly certification of design and construction standards, risk management, environmental compliance, site rehabilitation and final acceptance.

Asset Management Framework

Past audits have noted that Sydney Water has developed and implemented a robust Asset Management Framework, consistent with the requirements of an operation that relies on more than 8 million assets across three asset portfolios. The 2013-2014 audit found that Sydney Water continues to maintain and implement an asset management system across all asset classes and has implemented projects to refine the accuracy of the data used in the Maximo data base which is the “sources of truth” for Sydney Water’s business systems used to monitor and maintain the assets under management. A “Source of Truth” refers to the primary repository of information that is accessed by multiple enterprise platforms. The auditor found that that Sydney Water have documented procedures in place to regulate and review any changes to this primary repository. In addition, the audit found that Sydney Water is improving the internal procedures applied to review asset performance by expanding the criteria used, recorded and are tracking information on assets from asset class to asset portfolio area. This Enterprise Program Portfolio Management (EPPM) project is a significant improvement that will allow for greater comparison on individual asset performance across a range of applications.

The Glenfield Sewage Overflow Incident (22 November 2013) was a notable event where the asset management framework was tested. Critical assets were not available for fast deployment, and a range of interim measures were deployed to mitigate a sewage overflow to the George’s River. During the incident debrief a range of issues to rectify were recognised. These generally related to a lack of successful immediate communication to each party to be contacted.

Such as number not connected, number always engaged, calling many times before a response. The incident de-brief recommends many updates to the communication protocols. Critical spare and assistance equipment was also difficult to access – de-brief notes that such equipment should be retained as critical equipment (eg – overhead crane / pumps with correct head and hosing). It was noted that these recommendations and actions have not been implemented almost 12 months since the event occurred.

Infrastructure Performance

Sydney Water demonstrated Full Compliance with all audited requirements for performance standards covering water pressure, water continuity, sewage overflows and response time for water main breaks. Table 3-1 presents a summary of infrastructure performance results against targets to demonstrate compliance.

Table 3-1 Summary of infrastructure performance results against targets

Standard	Target	Result
Pressure less than 15 meters	6,000 properties	661 properties
Unplanned Supply Interruption exceeding 5 hours	40,000 properties	32,438 properties
3 or more unplanned interruptions exceeding 1 hour	14,000 properties	4,978 properties
Uncontrolled dry weather sewage overflow	14,000 properties	8,869 properties
3 or more uncontrolled dry weather sewage overflows	175 properties	66 properties
Response time for Priority 6 breaks/leaks within 3 hours	90% of jobs	92% of jobs
Response time for Priority 5 breaks/leaks within 6 hours	90% of jobs	91% of jobs
Response time for Priority 4 breaks/leaks within 5 days	90% of jobs	94% of jobs

Water Pressure Standard

Sydney Water has consistently complied with the Pressure Standard in each 12 month period since the 2010-2011 audit. During this time, the number of properties affected by a water pressure incident, where water pressure falls below 15 meters of head measured at the connection of the property to the main, was 572 (2011-2012), 1,280 (2012-2013) and 661 (2013-2014). The number of properties affected by a Water Pressure Failure in the 2010-2011 period was 834, which falls within the range reported for the past three years. Consequently, the year to year variations do not present a trend and reflects a consistent, on-going commitment to maintenance, renewal and refurbishment of the drinking water network.

Water Continuity Standard

In 2013-2014 Sydney Water fully complied with the Water Continuity Standard that no more than 40,000 properties experience an unplanned interruption of water supply exceeding 5 hours and that no more than 14,000 properties experience 3 or more unplanned interruptions of water supply exceeding 1 hour.

Sydney Water has consistently complied with both these Water Continuity Standards in each 12 month period since the 2010-2011 audit.

During this time, the number of properties affected by an unplanned water supply interruption of more than 5 hours was 30,919 (2011-2012), 31,569 (2012-2013) and 32,438 (2013-2014). Over the same period, the number of properties experiencing 3 or more unplanned interruptions of more than 1 hour was 5,147 (2011-2012), 6,363 (2012-2013) and 4,978 (2013-2014). There is no discernible trend in variability of performance for this clause since the average number of properties affected per year by an unplanned event exceeding 5 hours is approximately 10% higher than the 29281 properties affected in the 2010-2011 audit period, the average number of properties in the past 3 years that experienced 3 or more unplanned events of 1 hour duration is approximately 10% lower than the 5,363 properties affected in 2010-2011.

It should be noted that Sydney water revised the numbers reported for this standard to reflect the addition of interruptions due to third party issues. The revision of the numbers reflects an error in reporting of less than 10% for 2013-2014 data. Irrespective of this error, the continuity standard is met.

Sewage Overflow Standard

In 2013-2014 Sydney Water fully complied with the Sewage Overflow Standard that “no more than 14,000 properties experience an uncontrolled sewer overflow in dry weather and no more than 175 properties experience 3 or more uncontrolled sewer overflows in dry weather”. Sydney Water has consistently complied with both these sewer overflow standards in each 12 month period since the 2010-2011 audit. During this time, the number of properties affected by uncontrolled sewer overflow in dry weather was 7,708 (2011-2012), 6,908 (2012-2013) and 8,869 (2013-2014). Over the same period the number of properties that experience 3 or more uncontrolled sewer overflow in dry weather was 43 (2011-2012), 39 (2012-2013) and 66 (2013-2014). This clause was first audited in 2010-2011. Although the number of properties affected by a single uncontrolled sewer overflow in dry weather each year in the last three years is less than the 9,158 affected in 2010-2011, there has been a steady increase from the 30 properties that experienced 3 or more uncontrolled sewer overflows in dry weather in the same period.

Sydney Water has indicated that the majority of these overflow events can be attributed to root intrusion rather than asset failure and is actively working with customers to expand the program to clear blockages.

System Performance Standards

The systems and procedures used by Sydney Water to extract and record data from systems including Maximo, Hydra, IICATS, for subsequent use in the calculation of performance indicators are robust and reliable. Sydney Water staff demonstrated how these systems are used in head office, in treatment plants and in the field during inspection of water mains and reservoirs. The precision and accuracy of the data used to calculate performance indicators including, properties affected by supply and pressure excursions, and response times for water mains breaks, is sufficient for the faithful calculation and reporting against these performance indicators. The audit was presented with evidence that Sydney Water has invested in projects such as the Data Integrity Project to further improve the accuracy of the sources of truth as part of on-going improvement to maximise the reliability and utility of the assets under management.

Sydney Water employs the same interpretation of the definitions and applications of service quality and system performance indicators and as such, there is no ambiguity between definitions used by IPART or evidence that IPART's interpretation of these definitions would not be accepted by Sydney Water.

Response Time for Water Main Breaks

Sydney Water has a well developed set of procedures and systems for recording, responding and tracking outcomes on incidents involving leaks in the water mains. Reports of breaks in water mains are received and actioned at the customer call centre. The initial priority of the job is determined by the caller's response to a scripted set of questions. Information on response times, based on the electronic date and time stamps categorised by job number in Maximo, are reported in the Business Information System. In the 2013-2014

audit period, Sydney Water responded to 92% of the 180 Priority 6 breaks within 3 hours, 91% of the 3,277 Priority 5 breaks within 6 hours and 94% of the 5,897 Priority 4 breaks within 5 days.

In the two years since this clause was last audited Sydney Water complied with the required response time in 92% (2011-2012) and 93% (2012-2013) of the Priority 6 breaks, 93% (2011-2012) and 93% (2012-2013) of the Priority 5 breaks and 92% (2011-2012) and 91% (2012-2013) of the Priority 4 breaks.

The auditor noted that in the next 12 months, Sydney Water plans on improving information in the Standard Operating Manuals (SOM's) stored on Maximo to cover the availability of resources/spares to complete tasks in the field, thereby allowing Field Crews to source additional information directly through the Field Resource Management System (FRM). The FRM is a workforce management system that enables the electronic transfer of information to and from field staff using wireless technology and mobile computing devices. Field staff use FRM to receive, process and complete work orders in real time. It allows field staff to perform a range of functions including accessing GIS maps in the field and capture asset locations and affected properties for rebate purposes.

Priority Sewage Scheme

In 2013-2014, Sydney Water provided wastewater services to lots in Wilton, Douglas Park, West Hoxton, Bargo, Buxton and Cowan as required under Clause 3.6 of the Operating Licence. A review of the certificates of availability for these areas confirmed that wastewater services were delivered in these areas and accepted by Sydney Water by the 30th of June 2014. It was noted that in the case of Wilton, that while connections are available, a temporary transfer arrangement is in place while construction and commissioning activities are being completed. Sydney Water has produced an interim operating plan (IOP) for this period until the temporary systems are replaced with fully operational permanent systems.

The audit found that Sydney Water is proceeding to program for delivery of wastewater services to Galston and Glenorie by 30th of June 2015 as required in Clause 3.6.

Document Control

During the interview it was assessed that a number of documents associated with the AMF were out of date with respect to proposed reviews. Other printed versions of documents excluded current information on planned works, and contained outdated budgets. Documents were noted as being uncontrolled versions and some were incomplete at the time of issue to the auditor. Whilst these document issues do not substantiate a change in grade, it is noted that these issues compliment other document control issues noted within the whole audit and are therefore worthy of attention.

3.3 Recommendations

There are no recommendations for Managing Assets.

3.4 Opportunities for improvement

AM OFI-2014| 1

Sydney Water conducts well informed and detailed incident de-briefs and reviews, as well as reviews of scenarios. From these, a range of recommendations and actions are identified for development and implementation, assigned to agency and role, with dates for completion. The recommendations and actions from the Glenfield Overflow Event have not been implemented in a timely manner. Timely implementation of these recommendations and actions would allow Sydney Water to further mitigate risk. The risk to public health was not assessed as being substantially elevated since operator training and awareness, as well as responsiveness, is very strong. The actions noted were substantially of an improvement basis associated with asset deployment and communication protocols, and not deemed as critical to a public health response. It is suggested that the actions be assigned due dates in a risk based manner, and that these dates be met. High risks should be expected to be actioned within 1 month and all actions within 3 months.

AM OFI-2014| 2

Sydney Water are encouraged to update document control records on those asset management and reporting documents where version control and sign-off was not up to date. The review of the AMF plans scheduled for 2015-2016 provide an opportunity for continued demonstration of a robust and transparent processes of review in alignment with Clause 3.1.2 (e).

4. Customer and customer rights

4.1 Clauses audited

Licence clause	Operating licence obligations
4.4	Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment
	(a) Sydney Water must have in place and comply with procedures relating to customer hardship, debt, water flow restriction and disconnection. These procedures must include: <ul style="list-style-type: none"> (1) a customer hardship policy for residential Customers, that helps residential Customers in financial difficulty better manage their current and future bills; (2) a payment plan for residential Customers who are responsible for paying their bill and who are, in Sydney Water's opinion, experiencing financial difficulty; (3) conditions for disconnection of supply or water flow restriction in accordance with the disconnection procedure set out in the Customer Contract; and (4) provisions for self-identification, identification by community welfare organisations and identification by Sydney Water of residential Customers experiencing financial difficulty.
	(b) Sydney Water must set out the procedures relating to customer hardship, debt, water flow restriction and disconnection referred to in clause 4.4(a) in the Customer Contract.
	(c) Sydney Water must provide information on its procedures relating to customer hardship, debt, water flow restriction and disconnection free of charge to: <ul style="list-style-type: none"> (1) residential Customers, at least once annually with their quarterly or other bills; (2) residential Customers who are identified as experiencing financial difficulty; and (3) any other person who requests it.
	(d) Sydney Water must publish its procedures relating to customer hardship, debt, water flow restriction and disconnection on its website.
	(e) Sydney Water must advise residential Customers of their rights, including any rights to have a complaint or dispute referred to the Energy and Water Ombudsman NSW for resolution.
4.5.1	Customer Councils
	(a) In accordance with the Act, Sydney Water must have in place and regularly consult with a Customer Council to enable community involvement in issues relevant to the performance of Sydney Water's obligations under the Licence. Sydney Water may have one or more Customer Councils.
	(b) Sydney Water must consult with the Customer Council, in accordance with the terms of the relevant Customer Council Charter, on: <ul style="list-style-type: none"> (1) the interests of Customers and Consumers of Sydney Water; (2) the Customer Contract; and (3) such other key issues related to Sydney Water's planning and operations as Sydney Water may determine.
	(c) Sydney Water must appoint the members of a Customer Council, consistent with the Licence.
	(d) At all times, the membership of a Customer Council must include a representative for the interests of at least each of the following: <ul style="list-style-type: none"> (1) business and consumer groups; (2) low income households; (3) people living in rural and urban fringe areas; (4) residential consumers; (5) environmental groups; (6) local government; and (7) people from culturally and linguistically diverse backgrounds.
	(e) Sydney Water must provide a Customer Council with information within its possession or under its control (other than information or documents over which Sydney Water or another person claims confidentiality or privilege) necessary to enable that Customer Council to discharge the tasks assigned to it.

4.2 Summary of findings

The Operating Licence clauses reviewed related to the following areas of retail supply services:

- Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment
- Customer councils

Sydney Water fully complied with the requirements of the audited clauses.

Sydney Water has a comprehensive range of processes supported by a suite of documents in place to address customer hardship, debt, water flow restriction and disconnection for non-payment. One of the Customer Council members interviewed made the specific comment that the processes and documentation to assist customers facing hardship is 'one of the best' she had seen.

Sydney Water's Customer Council meetings, held quarterly, provide a forum for the exchange of information between the utility and customer representatives. The agenda items and business papers submitted to the Customer Council meetings demonstrate that issues of relevance are tabled at these meetings. A standing agenda item 'Sydney Water news and events' allows issues of relevance to be raised and discussed at these meetings. Furthermore, the Customer Council receives an annual report.

The following sectors are represented:

- Community Relations Commission NSW
- Blue Scope Steel
- Nature Conservation Council NSW
- Sydney Business Chamber
- NSW Council of Social Service
- Pittwater Council
- Total Environment Centre
- Marrickville Legal Centre
- Urban Development Institute of Australia
- Illawarra Forum Inc
- Public Interest Advocacy Centre.

The Customer Council is functioning effectively. Two members of the Council were interviewed over the phone. Both of them complimented Sydney Water in the way they engaged with the agencies, the information provided and the interest the Executive and the Board showed by attending the meetings on a regular basis. In addition, the Public Interest Advocacy Centre (PIAC) in its submission to IPART on Sydney Water's Operating Licence stated *"On the whole, PIAC considers that the Customer Council works effectively, allowing consumer representatives to engage with Sydney Water, including senior management (meetings are chaired by Sydney Water Managing Director where possible)"*. The operation of the Council was in accordance with the Customer Charter in place.

4.3 Recommendations

There are no recommendations for retail supply.

4.4 Opportunities for improvement

RS OFI-2014| 1

There are opportunities to improve document management processes. It was noted that:

- There are no document identification system details such as a numbering system evident on some documents supplied.
- Version control was lacking on some evidence documents.
- The Overdue Payments and Disconnection for non-payment Policy has two versions, external and internal. These two documents have two different dates in the footer.
- A template for papers presented to the council could be of benefit as papers did not have the same format.

5. Environment – indicators and management

5.1 Clauses audited

Licence clause	Operating licence obligations
6.1	Environment management
	(a) Sydney Water must maintain an environmental management system certified to AS/NZS ISO 14001:2004 (as updated from time to time) to manage environmental risk of its business and service delivery.
	(c) Sydney Water must complete an annual progress report in accordance with the Reporting Manual, outlining details of Sydney Water's progress with the environmental objectives, targets and timetable.
	(d) Each year Sydney Water must review the Five Year Environment Plan by consulting with DECCW and peak environmental non-governmental organisations to determine whether any changes to the Five Year Environment Plan are required in the subsequent year and the nature of those amendments.
6.2	Environment indicators
	Sydney Water must:
	(a) monitor, record and compile data on the Environmental Performance Indicators; and
	(b) report on the Environmental Performance Indicators,
	in accordance with its obligations under the Reporting Manual.

5.2 Summary of findings

Sydney Water has provided sufficient evidence to be assessed as having demonstrated 'Full Compliance' with the requirements of Clauses 6.1 a, 6.1 c, 6.1 d, 6.2 a and 6.2 b.

The Sydney Water Environmental Management System (EMS) is certified by 3rd party auditor every year (a surveillance audit) and every three years, a full recertification audit is conducted. Prior to the full recertification audit, Sydney Water conducts an internal audit against the requirements of the ISO 14001 standard.

The EMS Steering Committee reviews the environmental performance annually and this would take into account other aspects of the business including any changes in legislation, divisional business plans and Corporate Strategy. This is reported annually in their Operating Licence Environment Report as the Environment Plan Annual Report, which also contains the annual Environmental Indicators Report.

Each year, as part of the Sydney Water annual reporting process, any new stakeholders are identified and placed onto the contact list. The EMS Review process takes into account all business divisions and is driven by the need to meet ISO14001 requirements.

A sample of the IPART indicators was assessed to determine compliance with Clause 6.2 and to check calculation methods. Each indicator has its own method of data monitoring, recording, compilation and calculation.

Sydney Water produces a Folio of Progress for their IPART Environmental Performance Indicators grouped into the following areas:

- Wastewater treatment and system discharges
- Environmental compliance
- Greenhouse gas emissions
- Electricity

- Trade waste
- Biosolids
- Waste
- Flora and fauna.

The Folio of Progress provides details on:

- Staff responsible for the indicator
- Context and background
- Relevant definitions, interpretations, exclusions, assumptions, formulas
- Rolling five year actions and progress
- Internal audit findings
- Minister's requirements
- List of relevant documents.

The data collation and calculation of the Environmental Performance Indicators are audited annually by a third party auditing organisation (most recently Net Balance) and their findings are summarised in each Folio of Progress.

The information from each of the Folio of Progress is summarised into the Environmental Indicators Report within the Operating Licence Environment Report annually.

5.3 Recommendations

There are no recommendations associated with environmental management.

5.4 Opportunities for improvement

EM OFI-2014| 1

It is suggested that the percentage of contracts where data was not available, and therefore had to be extrapolated, is included when reporting on the Environmental Performance Indicators. This would provide an indication of the accuracy of the data.

6. Water conservation

6.1 Clauses audited

Licence clause	Operating licence obligations
7.1	Water Usage Level
	(b) Thereafter, Sydney Water must continue to maintain the Water Usage Level for the remainder of the term of the Licence, to be measured at 30 June each year.
	(c) In calculating water usage for the purposes of the Water Usage Level, Sydney Water may make reasonable adjustments to account for the effects of weather on water usage using a methodology approved by IPART.
	(d) If Sydney Water fails to meet the Water Usage Level in a particular year, Sydney Water must demonstrate, to the satisfaction of IPART, that it would not have been reasonable to meet the Water Usage Level in that year.
7.2	Water Leakage
	(a) Sydney Water must ensure that the level of water leakage from its Drinking Water supply system (the Water Leakage Level) does not exceed 105 megalitres per day.
	(b) When calculating the Water Leakage Level each year, Sydney Water must use the assumptions and methodology approved by IPART.
7.3	Water efficiency programs
	(a) Sydney Water must undertake and promote water efficiency programs.
	(b) Sydney Water must give due consideration to water efficiency and other water conservation measures as part of planning the future provision of its Services, including addressing water leakage.
7.4	Water recycling program (including stormwater)
	(a) Sydney Water must promote, foster and encourage the production and use of Recycled Water in the Area of Operations.
	(b) Sydney Water must: <ol style="list-style-type: none"> (1) meet any target relating to the production and/or use of Recycled Water set by the Minister from time to time consistent with the objectives of the Metropolitan Water Plan; and (2) implement any particular Recycled Water schemes indicated by the Minister so as to meet any target in clause 7.4(b)(1) above.
	(c) Sydney Water is not required to undertake any Recycled Water scheme where it is not financially viable to do so.
7.5	Water Conservation Strategy Document and annual report
	(a) Sydney Water must prepare and submit to IPART and the Minister by 31 December 2010 a Five Year Water Conservation Strategy Document covering the term of the Licence. The Five Year Water Conservation Strategy Document must include details of: <ol style="list-style-type: none"> (1) strategies relating to water leakage; (2) strategies relating to Recycled Water; (3) strategies relating to water efficiency; (4) how the water conservation strategies outlined in paragraphs (a)(1) – (a)(3) above contribute to the objectives and targets outlined in the Metropolitan Water Plan.
	(b) The Five Year Water Conservation Strategy Document must provide an analysis of current and future programs and projects being undertaken, and expected to be undertaken, by Sydney Water. In particular, the Five Year Water Conservation Strategy Document must outline Sydney Water's water conservation objectives, targets and timetable for the entire term of the Licence.
	(c) Sydney Water must provide an annual report on its progress in implementing its water conservation strategies in accordance with the Reporting Manual. The annual report must include an explanation of how work done for the purpose of implementing the water conservation strategies undertaken during the year contribute to the objectives and targets outlined in the Metropolitan Water Plan.
	(d) The following documents must be placed on Sydney Water's website: <ol style="list-style-type: none"> (1) the annual report on Sydney Water's progress in implementing its water conservation strategies required under clause 7.2(c); and (2) the Five Year Water Conservation Strategy Document.

6.2 Summary of findings

The Operating Licence clauses reviewed related to the following areas of retail supply services:

- Water usage
- Water leakage
- Water efficiency programs
- Water recycling program
- Water conservation strategy document and annual report.

Sydney Water fully complied with the requirements of the audited clauses.

Sydney Water's water usage target is set at 329 litres per person per day. In 2013-14 the usage level was 307 litres per person per day which is well below the target. Well established usage monitoring processes are in place and reporting takes place on a regular basis.

IPART has determined that measured leakage which does not exceed the range of 105±16 ML/day constitutes compliance with the Water Leakage Level. Sydney Water's leakage level for 2013-14 was 107 ML/day, which is at the target level within the band of acceptable leakage. There are a suite of strategies in place to ensure compliance. The monitoring of the trends allows Sydney Water to take action in order to maintain the leakage level below that determined by IPART.

Sydney Water uses several avenues to promote water efficiency which reached a significant proportion of its customer base. The effectiveness of these avenues is tracked through a monitoring process in order to enable Sydney Water to maximise the effectiveness of its promotional activities. The usage level of 307 litres per person per day is well under the target of 329 litres per person per day which is an indication of the success of the activities undertaken by Sydney Water.

There is a detailed framework in place that demonstrates Sydney Water's commitment to water recycling. The Sydney Water website carries information that would assist the development of recycle water sources. Whilst Sydney Water is not wholly responsible for meeting the Government's recycled water target, it has programs in place to contribute towards the Government's target. There are internal Sydney Water processes to ensure that the recycled water schemes Sydney Water engages in are financially viable.

In its Water Conservation Strategy 2010-2015 document Sydney Water details how the strategies relating to water leakage, recycled water efficiency and water conservation contribute to the targets and objectives outlined in the Metropolitan Water Plan.

Overall, Sydney Water has demonstrated that its strategies have successfully achieved an acceptable level of water efficiency, as the usage level is at 307 litres per person per day which is well below the target of 329 litres per person per day. Sydney Water contributes to two targets in the 2010 Metropolitan Water Plan:

- To recycle 70 billion litres of water each year by 2015
- To save 145 billion litres of water each year by 2015 through water efficiency measures (including leak management).

The Water Efficiency Report 2013-14 details the implementation of Sydney Water's water conservation strategies, as detailed in the Water Conservation Strategy 2010-2015, and how those strategies contribute to the objectives and targets outlined in the Metropolitan Water Plan.

The annual report on Sydney Water's progress in implementing its water conservation has been finalised, but is yet to be placed in the website, only partially completing the auditable deliverable. This is a timing issue rather than a neglect of licence requirements. The timing of the website publication of the Water Efficiency Report coincides with the release of the Sydney Water Annual Report, which is tabled in Parliament in November each year.

The Sydney Water Annual Report and related reports including the Water Efficiency Report and the Operating Licence Environment Report are posted on the website concurrently in late November / early December.

6.3 Recommendations

There are no recommendations for retail supply.

6.4 Opportunities for improvement

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There are opportunities to improve document management processes. It was noted that the process used to validate the water usage figure could be streamlined as the current process appears to be disjointed.

7. Reporting and maintaining records

7.1 Clauses audited

Licence clause	Operating licence obligations
9	Reporting and maintaining records (note that this included the auditing of NWI indicators)
(a)	Sydney Water must comply with its reporting obligations set out in the Reporting Manual and must report to IPART in accordance with the Reporting Manual.
(b)	Sydney Water must provide to NSW Health a copy of any report referred to in the Reporting Manual relating to water quality monitoring.
(c)	Sydney Water must maintain record systems that are sufficient to enable it to accurately report in accordance with clause 9(a).

7.2 Summary of findings

The evidence demonstrated that reporting had been performed in accordance with the Reporting Manual for Sydney Water Corporation June 2013 (the Reporting Manual). This included a review of quality and timeliness for the deliverables listed in the Reporting Manual. Reporting was to the satisfaction of NSW Health. The accuracy and reliability of the reported information, including indicators was reviewed separate to the assessment of this clause and is therefore captured under other clauses.

With respect to the obligations for reporting on water quality monitoring, Sydney Water has complied with all requirements set out in the Reporting Manual. A significant amount of verification and operational monitoring and reporting was undertaken. This was complimented by incident and alert notification reporting, which is highly automated. Reporting was conducted in a timely manner and appropriate to the satisfaction of NSW Health.

The systems in place for capturing, storing and reporting information are sound. Reporting was delivered on time and in accordance with the Reporting Manual, supported by these systems.

7.3 Recommendations

There are no recommendations for indicators.

7.4 Opportunities for improvement

There are no opportunities for improvement for request for information and access.

8. Request for information and access

8.1 Clauses audited

10.2	Request for information and access – NSW Health
	Sydney Water must comply with any request by NSW Health for information relating to water quality. The information provided under this clause must be in the manner and form specified by NSW Health.

8.2 Summary of findings

The evidence provided indicates that NSW Health is satisfied that Sydney Water has met its obligations under the Operating Licence and MoU.

8.3 Recommendations

There are no recommendations for request for information and access.

8.4 Opportunities for improvement

There are no opportunities for improvement for request for information and access.

9. Memoranda of understanding

9.1 Clauses audited

11	Memoranda of Understanding
(a)	In accordance with the Act, Sydney Water must maintain a memorandum of understanding with each of the following: (1) the Water Administration Ministerial Corporation (WAMC); (2) NSW Health; and (3) DECCW, for the term of the Licence.
(b)	The purpose of a memorandum of understanding is to form the basis for co-operative relationships between the parties to the memorandum. In particular: (1) the memorandum of understanding with NSW Health is to recognise the role of NSW Health in providing advice to the Government of NSW in relation to: (A) the management of the supply of Drinking Water to ensure it is safe to drink; and (B) the management of the supply of Recycled Water in respect of its fitness for purpose and effects on health; (2) the memorandum of understanding with DECCW is to recognise DECCW as the environmental regulator of the State and to commit Sydney Water to environmental obligations; and (3) the memorandum of understanding with the WAMC, is to recognise the role of WAMC in regulating water access, use and management and Sydney Water's right to use water vested in the WAMC.
(c)	Clause 11(a) does not limit the persons or regulatory agencies with whom Sydney Water may have a memorandum of understanding.

9.2 Summary of findings

Appropriate and current MOU are maintained with the relevant entities in accordance with Clause 11. These are activated via the Joint Operational Group and Strategic Liaison Group meetings.

9.3 Recommendations

There are no recommendations for memoranda of understanding.

9.4 Opportunities for improvement

There are no opportunities for improvement for memoranda of understanding.

10. Outstanding recommendations from previous audits

10.1 Recycled water

The previous audit recommendations associated with recycled water were:

1. *Sydney Water's internal processes for ensuring compliance of customers' operating recycled water schemes (classified municipal use - restricted access and application, or municipal use - enhanced restrictions on access and application) with their contract should be strengthened. At the moment, Sydney Water relies on the Annual Declarations from customers to manage the potential exposure risks or inappropriate uses of recycled water.*
 - *As a minimum, Annual Declarations forms need to be strengthened and all customers advised on how to properly complete their Annual Declarations.*
Where appropriate, customers are to re-submit declarations for 2012/13 that have not been completed properly.
 - *Additional procedures, such as site inspections for signage and usage controls, should be considered.*

An inspection checklist has been drawn up but inspections had not been planned until coming into the summer months when recycled water use is greater and more consistently used. Recommend that the Checklist includes the following information:

- Location
- Date
- Name of inspector
- Name of inspectee.

The intention is to carry out up to two site inspections per annum. Inspections have not been planned until coming into the summer months (2014) when recycled water is in greater and more consistent use (i.e. customer controls may not be in use if recycled water is not being used).

A Business Customer Service officer has been allocated as the liaison point for each recycled water industrial/commercial scheme customer. These officers maintain contact as required. Each industrial/commercial customer has a separate Customer Agreement which includes requirements concerning use of recycled water.

Four customers who had not completed their declarations correctly were required to resubmit them. They are Wollongong Golf Club and Castle Hill Golf Club (declarations originally not witnessed by the correct party), and Liverpool Golf Club and Warwick Farm Racecourse (incorrectly dated their declarations for the year ahead). The revised declarations have all been received.

This audit recommendation cannot be fully closed but progress has been made and there is sufficient evidence to suggest this can be closed by June 2015.

2. *The Recycled Water Quality Management Plan should be updated to fully reflect how Sydney Water's Liverpool recycled water plant is configured and how it is achieving breakpoint chlorination. It also needs to specify target limits, as well as critical limits. This should be given to NSW Health for endorsement.*

The Liverpool RWQMP was updated to reflect the physical changes that had been occurring at the site (e.g. new chlorine contact tank). This updated Plan was supplied to NSW Health at the end of June 2014. No response has been received from NSW Health to date. Phone interview confirms that NSW Health is likely to endorse the Plan shortly.

This audit recommendation has been met and can be considered closed.

3. *Following the treatment plant verification program, the Recycled Water Quality Management Plans should be reviewed and updated, where appropriate, and submitted to NSW Health for endorsement.*

There is a proposed four year rolling program of review, which has been endorsed by NSW Health

This audit recommendation can be closed.

Appendices

Appendix A – Detailed audit findings – Water quality

Detailed Audit Findings		Drinking Water Quality
Sub-Clause	Requirement	Compliance Grade
2.1a	Sydney Water must manage Drinking Water quality to the satisfaction of NSW Health in accordance with the Australian Drinking Water Guidelines (unless NSW Health specifies otherwise).	Full
Risk		Target for full compliance
Failure to meet the requirements of the ADWG (and NSW Health) could have a severe impact on the public health of customers in the Sydney region.		Compliance with the twelve elements of the ADWG. In the case of this audit the focus was on: <ul style="list-style-type: none">• Element 2 – risk management• Element 3 - critical control points• Element 5 - verification of water quality• Element 6 - management of incidents• Element 12 – continual improvement.
Evidence sighted		
<ul style="list-style-type: none">• Minutes JOG 17 February 2014_Final• Minutes 2014 August JOG DWQ update FINAL• NSW Health Letter – Dated 27 August 2014• Drinking Water Quality Folio of Progress• Five-year Drinking Water Quality Management Plan• DW Operational monitoring plan 2013-14 Final• SK 2014-07-04-Business review report - SDIMS-Stage 2 Rev3• WPIMS5228 Drinking Water Quality event Management Plan• SWIRL: Water Quality incidents• WPIMS5274 Triggers notifications and actions for adverse WQ results• Quarterly Drinking Water Report to NSW Health Q3 2013-14• Quarterly Drinking Water Report to NSW Health Q4 2013-14 Final v2• Daily Exception Report FW 2014-08-25 15 18 37 602 - Automated email notification from AMD's Actions Database• E. coli investigation report 2014-03-03 Dural Res WS0039• Adjustment and Protection Manual• Example NOR• Instructions to constructors Major Works• Instructions to WSC• Land Development Manual• MNDP Summary Sheet and links• SOP WPIMS5027 Commissioning new mains• Form WPIMS5027.01 WR16• WPIMS5268_R2 Commissioning Optimisation of Water Main Renewals NWA• WPIMS5261 Certifying WQ when commissioning-returning reservoirs into service• FS075v10 Determination of Chlorine Residuals in the field• WPIMS5041 Manual Disinfection of Service Reservoirs• 24 June 14 Monthly Disinfection Report• NSYS13_JUN14 Control Charts for Woronora• IMS0067 Disinfection management SOP• Woronora 150714 Chlorine tablet dosing sheet• JUN14_BOXES Percentile charts for reservoirs• Woronora Disinfection Review Minutes for March 14• Rechlorination Plant Monthly Report - June 2014• Chlorine titrator calibration records• Chlorine colorimeter calibration records• Item 11 - Final OzWater ozone presentation• SDIMS0001		

- Source Risk Assessment Warragamba
- Western Water Forum Minutes_April 2014
- Minutes of the Prospect Operation Interface Meeting No 76 held on 20 March 2014
- Connection report
- Corrective Action Report
- Oran Park TM Welling Drive site inspection audit
- Example Construction Audit Flynn Ave Middleton grange
- Compliance Accountability Register iconn_ud_dd_069868 (under review)
- Catchment to Tap Risk Framework
- Risk Policy
- Item 7 - Source Risk Assessment Warragamba
- CTT risk register_summary_IPART
- 0212 Risk Register NFRP
- Warragamba Site Risk Register_current
- Annual Drinking Water Quality Monitoring Plan 2013-14 ver2 with attachment
- Fluoride Report Combined - May 2014
- Fluoride Report Combined - June 2014
- ORACLE Screen shots
- 3rd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health Dropbox notification
- Revised - 4th Quarterly Drinking Water Quality Monitoring Report to NSW Health Dropbox notification
- Product Specifications Water G1 01
- WTWG5331Warragamba WFP- Abnormal Water Quality Contingency Plan – SCADA set points
- BMIS0038 SCA and SW Protocol for response to the detection of Cryptosporidium and Giardia in Drinking water Supply
- Nth Richmond HRN12_TAP 2013 07 10
- Nth Richmond positive notification - 2013 07 02
- Nth Richmond Follow up samples - 2013 07 02
- Nth Richmond HRN12_TAP 2014 04 30
- Nth Richmond positive notification - 2014 04 30
- Nth Richmond Follow up samples - 2014 04 30
- Macarthur Debrief_Final_11072014
- Exercise Flooded Report – Final
- Minutes colour working group 140725
- Minutes turbidity compliance 140214
- Minutes turbidity compliance 140725
- QMS certificates of currency
- QMS requirements for providers
- NSW Health Letter – Dated 27 August 2014
- SWGC Turner Road Detailed Planning Options Report FINAL – 070120.

Summary of reasons for grade

For the period 1 July 2013 to 30 June 2014 Sydney Water managed drinking water quality in accordance with the Operating Licence requirement. All of the 13 water delivery systems fully complied with the ADWG 2011 health long term compliance measures. Incidents were well managed, communicated and reported. Customers were not unduly impacted by performance matters.

Discussion and notes

The Joint Operational Group across SWC, NSW Health and the SCA met during the audit period. No requirements were noted during these meetings. These are a good connection point across the 3 entities intimately responsible for providing drinking water. Sydney Water is committed to providing a high quality drinking water product to its customers and to the growth areas. Monitoring and reporting ensures prompt identification and rectification of water quality issues. Compliance and operational monitoring, as well as research and development programs support Sydney Water's ability to provide safe drinking water.

Element 2 – Risk Management

Drinking water related risk management is instilled in overall corporate risk management. Catchment to tap risks are developed and reviewed. Water filtration plant risks are documented and mitigated. Scheme and zone specific risks are monitored and managed when a zone of concern is known (as shown in the management of the Woronora chlorine zone). Operators are trained and are aware of key risks and mitigation strategies.

Sydney Water is moving towards the use of ozone to disinfect mains and have invested in research and development to validate this method. It is more reliable and timely. It is to commence business as usual operations during 2014-15.

Element 3 - Critical Control Points (CCPs)

CCPs are referred to in the Water product Specification and as 'triggers' for notifications and actions for adverse water quality events. It was noted in the previous audit that conversion of this terminology to that of HACCP would be beneficial for consistency with the ADWG (and the Australian Guidelines for Water Recycling – where some operators and corporate functions sit across both).

The 'CCPs' for the Warragamba Water Filtration Plant were reviewed in detail. They are aligned with corporate catchment to tap risk, reticulation risk and requests for targets with the network delivery team. During the site verification of Warragamba Water Filtration Plant it was noted that a recent and detailed SCADA, electrical and instrumentation upgrade had taken place and was reaching full commissioning and handover. The SCADA alarms and setpoints, the associated site documented CCPs (the Water Product Specification), and the Triggers notifications and actions for adverse water quality were not completely aligned. Alignment is preferred such that there is a link between the documented CCP (the Water Product Specification), the trigger SOP and the SCADA to ensure public health risk is mitigated. It is understood that further update will be occurring as the new SCADA is fully on-boarded and the operators are trained, and the SOP updated. The Warragamba CCPs include the raw water supply (from Sydney Catchment Authority), filtered water, treated water, reservoir water. Each filter has a turbidity CCP with filtered water turbidity required to meet 0.1NTU. Backwash is triggered by NTU, pressure, time and volume filtered.

Notice of change request are issued by the networks team to the plant operators to set the desired chlorine level to be issued at the reservoir. This does not change short term, and can be changed generally seasonally.

Element 5 - Verification of Water Quality

A substantial quantum of verification monitoring is conducted and reported upon. It is analysed and statistically reviewed on a routine basis. This includes biological, physical and chemical parameters for health and aesthetic value. This is in keeping with Element 5 of the ADWG. Appropriate sampling and analytical methods are used including quality assurance processes. Control charts and other methods are used to observe changes in trends.

As an example of verification monitoring response, the Woronora disinfection zone studies were reviewed. The June 14 Monthly Disinfection Report provides a summary of the chlorine residual maintained across the distribution network. An orange and red traffic light type system reporting is applied to readily identify areas of concern. Woronora is considered by Sydney Water to be a zone of concern and watch, and not likely to substantially impact the public health outcome. It is of note that few achieve 100% passing the disinfection target, with the overall percent passing being 94.12%. Overall 79.4% of samples exceed the aesthetic guideline value. Woronora is notably sensitive to change and hard to bring back into line during warmer months, being impacted by nitrification. Wet weather reduces this outcome. To mitigate risk, Sydney Water has increased the chlorine setpoint at Woronora WTP to 2.1 mg/L which stabilises the system.

Additionally, it has been noted that introduction of new Pressure Reduction Valves (PRVs) can impact on compliance monitoring within the zone. This was noted to also be linked to an Illawong issue. Product and Asset Management is currently reviewing possible impacts on the compliance program caused by the pressure reduction program.

The IMS0067 Disinfection management SOP describes the activities involved in the process of managing disinfection for drinking water within the water delivery networks. The purpose of this document is to define a framework to ensure a systematic and effective review process of disinfection performance in an auditable manner. The scope of this document refers to the management of the disinfection process for the water delivery networks. The activities specified in the referred document include:

- Routine activities - applicable to all systems
- Delivery System-specific activities
- Non-system specific projects
- Risk assessments.

It covers shorter, longer and business wide timelines. Proactive management is key to maintaining disinfection.

Water quality reports are provided to customers, regulatory agencies, Sydney Water business units and to their contractors.

Element 6 - Management of Incidents

Exceptions were notified as per the requirements of the Drinking Water Quality Event Management Plan: Drinking Water Quality Management Plan. Incidents and follow up actions were recorded in the Sydney Water Incident Recording and Learnings System (SWIRL) which is accessed by NSW Health. Periodic water quality reporting to NSW Health is on an exception basis quarterly. Incidents are noted and discussed at the Joint Operational Group meetings.

Triggers notifications and actions for adverse WQ results provides a guideline for communicating adverse water quality results defined by the trigger tables within this SOP between Projects and Services, Networks and Treatment, respectively represented by Analytical Services / Analysis and Reporting (A&R), Water and Recycled Water Product Team (W&RWP) and Operations Contracts (OC). All *E.coli* results from live water systems are notifiable events to NSW Health and must be reported as per the protocol documented in the DWQEM SOP (WPIMS5228). When notification is received of an *E.coli* result: A repeat sample shall be taken from the same site and tested for the presence of *E.coli*, *Enterococci* (reservoirs only), total coliforms, HPCs, chlorine and temperature. A sample is also taken from the upstream reservoir in the case of a reticulation failure. An investigation is undertaken, and the *E.coli* Investigation Report completed (WPIMS5274.01). This was followed and implemented for some events during the audit period (such as for Dural Reservoir). All *E.coli* results from live water systems are notifiable events to NSW Health and must be reported as per the protocol documented in the DWQEM SOP (WPIMS5228), and this was conducted.

Incident de-briefs are undertaken in a well-documented manner. In August 2013 a joint exercise was undertaken with Sydney Catchment Authority and NSW Health for the management of a high turbidity event due to flooding. The incident de-brief noted a range of actions and recommendations for improvement. In November 2013, a high turbidity event (resulting from bushfire followed by large rain events) occurred at the Macarthur Water Filtration Plant. Actions and recommendations were developed as a component of the de-briefing.

The recommendations from the August 2013 de-brief included:

Recommendation	Recommended Responsible Party
Sydney Water, Sydney Catchment Authority and NSW Health need to share between them each individual agency's understanding of the risk factors that impact their own areas of operation.	Sydney Water Sydney Catchment Authority NSW Health
An investigation into the re-engineering of Macarthur Water Filtration Plant should be consider to improve its start-up capabilities after being shut down for not meeting drinking water quality guidelines.	Sydney Water
Strategies for the management of social media during drinking water quality incidents need to be developed and incorporated into the Public Communications Guidelines.	Sydney Water Sydney Catchment Authority NSW Health
Strategies for the management of a precautionary boil water notice to a section of the drinking water network need to be developed and incorporated into the Public Communications Guidelines.	Sydney Water Sydney Catchment Authority NSW Health
Strategies for standing down from a precautionary boil water notice need to be developed and incorporated into the Public Communications Guidelines.	Sydney Water Sydney Catchment Authority NSW Health
The contact persons within each organisation that are to be notified during the escalation of an incident at a single agency level need clarification. These contacts need to be disseminated between Sydney Water, Sydney Catchment Authority and NSW Health.	Sydney Water Sydney Catchment Authority NSW Health

Recommendations from the Macarthur incident included:

1. Develop risk based turbidity triggers/protocols for each catchment to facilitate the decision making process
2. Include agency liaison in the Sydney Water IMT
3. Running out of water is 'not an option'
4. Develop collaborative resourcing and training arrangements between SW and Trility
5. Review monitoring data & devices from SW, SCA and Trility address any gaps, overlaps etc., to provide better intelligence during incidents.

For the incident, it was determined between Sydney Water and NSW Health, that allowing a higher trigger alert for turbidity was valid (from 0.5 and 1.0 NTU) as the catchment was 'protected' (for example - from cows). There does not appear to be documents of evidence or correspondence that supports this outcome. It is not known what the protocol would be if the situation occurred again, or if it occurred in an 'unprotected' catchment.

In both cases, the timely implementation of actions and recommendations has not occurred and could result in risks not being mitigated. Indeed, the August 2013 training incident became a reality for the November 2013 actual incident, and the implementation of actions and recommendations from August 2013 would have supported the November 2013 incident response. In context however, the risk to public health was not assessed as being elevated as operator training and awareness, as well as responsiveness, is very strong. The actions noted were substantially of an improvement basis and not critical to a public health response.

Element 10 – Documentation and Reporting

It was observed that document control was not necessarily up to date for review status. Whilst the control issues were not substantive enough to warrant a change in compliance status, maintaining an appropriate frequency of review and document control supports Element 10 of the ADWG.

Element 12 – Continual Improvement

Sydney Water manages its continual improvement process in accordance with the Five-year Drinking Water Quality Management Plan. It does not retain a separate and distinct Improvement Plan and improvements are managed via a range of systems. It is difficult to draw a direct line from risks, to verification / reporting to a continual improvement outcome.

Recommendation

There are no recommendations in relation to this sub-clause.

Opportunities for improvement

Sydney Water should introduce the critical control point, target and critical level terminology throughout its documentation. Sydney Water is encouraged to update the listing of summary target and critical limits in its Drinking Water Product Specifications document and incorporate the criteria included in its document Triggers, Notifications and Actions for Adverse Water Quality Results (SOP).

Sydney Water conducts well informed and detailed incident de-briefs and reviews, as well as reviews of scenarios. From these, a range of recommendations and actions are identified for development and implementation, assigned to agency and role, with dates for completion. The recommendations and actions from the Flooding Incident Mock Event (August 2013) and the Macarthur Water Filtration Plant Incident (November 2013) have not been implemented in a timely manner. Timely implementation of these recommendations and actions are necessary for Sydney Water to further mitigate risk. The risk to public health was not assessed as being substantially elevated since operator training and awareness, as well as responsiveness, is very strong. The actions noted were substantially of an improvement basis and not deemed as critical to a public health response. It is suggested that the actions be assigned due dates in a risk based manner, and that these dates be met. High risks should be expected to be actioned within 1 month and all actions within 3 months.

The protocol for changing the turbidity trigger during an incident should be determined for each catchment on a risk basis. This should be documented in agreement between Sydney Catchment Authority, NSW Health and Sydney Water. Bushfire and / or flooding represent reasonably likely scenarios for which such a protocol could be prepared prior to an incident being in progress.

Sydney Water could mitigate risk by timely update and training of operators of the Warragamba 'CCPs' implemented via the Water Product Specification, and in accordance with the recent SCADA and electrical / instrumentation upgrade.

Sydney Water would benefit from a wholly separate and reportable Improvement Plan for drinking water to show alignment across Element 1 to Element 12 of the ADWG.

Sydney Water will be deploying ozone for disinfection of mains. It is recommended that the next audit conduct a review of the procedures, training, monitoring and site verification of ozone disinfection of mains.

Sydney Water would benefit from improved document control associated with drinking water procedures and reporting to demonstrate implementation of Element 10.

Detailed Audit Findings Drinking Water Quality		
Sub-Clause	Requirement	Compliance Grade
2.1b	Sydney Water must prepare, to the satisfaction of NSW Health, a Five Year Drinking Water Quality Management Plan covering the entire five year term of the Licence. The Five Year Drinking Water Quality Management Plan must be in operation by 31 December 2010 and include strategies for comprehensive management of the quality of Drinking Water in Sydney Water's water supply system in accordance with the ADWG (unless NSW Health specifies otherwise).	Full
Risk		Target for full compliance
Non-compliance with this clause increases public health risks to Sydney Water's customers. The protection of growth areas is a key risk factor to be managed through longer term planning and management.		Demonstrated implementation of the Five Year Plan. Demonstrated reporting in accordance with the Five Year Plan.
Evidence sighted		
<ul style="list-style-type: none"> Five-year Drinking Water Quality Management Plan http://www.sydneywater.com.au/web/groups/publicwebcontent/documents/document/zgrf/md_q1/~edisp/dd_045256.pdf. Minutes JOG 17 February 2014_Final Minutes 2014 August JOG DWQ update FINAL NSW Health Letter – Dated 27 August 2014 Drinking Water Quality Folio of Progress Drinking Water Operational monitoring plan 2013-14 Final Annual Drinking Water Quality Monitoring Plan 2013-14 Evidence as provided for Sub-clause 2.1a. 		
Summary of reasons for grade		
The strategies outlined in the Plan and associated improvement actions are being implemented and reported appropriately. Water quality results for 2013-14 demonstrate that the Plan is effective in protecting public health.		
Discussion and notes		
<p>The Five-year Drinking Water Quality Management Plan provides a general overview of Sydney Water's comprehensive management of drinking water quality and strategies to ensure the continued comprehensive management. The Plan is high level and highlights sub-documents that ensure any changes to system size/scope are appropriately managed.</p> <p>NSW Health is satisfied with the Plan. The Joint Operational Group minutes demonstrate an ongoing commitment to the Five-year Plan, and shows work towards longer term programs.</p>		
Recommendation		
There are no recommendations in relation to this sub-clause.		
Opportunities for improvement		
There are no opportunities for improvement in relation to this sub-clause.		

Detailed Audit Findings		Drinking Water Quality
Sub-Clause	Requirement	Compliance Grade
2.1d	Sydney Water is to implement procedures and processes for the appropriate management of the Drinking Water supply system under its control in light of its knowledge of the entire Drinking Water supply system (from the source to the consumer). Sydney Water must have adequate systems and processes in place to manage Drinking Water quality taking into account planning and risk management and their implementation across the entire Drinking Water supply system.	Full
Risk		Target for full compliance
Non-compliance with this clause may increase public health risks to Sydney Water's customers. Growth areas are a particular area of risk.		Sydney Water needs to demonstrate that it has adequate systems in place to manage drinking water quality throughout its network, including new growth areas. The South West Growth area was an audit focus.
Evidence sighted		
<ul style="list-style-type: none"> Adjustment and Protection Manual Example NOR Instructions to constructors Major Works Instructions to WSC Land Development Manual MNDP Summary Sheet and links SOP WPIMS5027 Commissioning new mains Form WPIMS5027.01 WR16 WPIMS5268_R2 Commissioning Optimisation of Water Main Renewals NWA WPIMS5261 Certifying WQ when commissioning-returning reservoirs into service FS075v10 Determination of Chlorine Residuals in the field WPIMS5041 Manual Disinfection of Service Reservoirs June 14 Monthly Disinfection Report SYS13_JUN14 Control Charts for Woronora IMS0067 Disinfection management SOP Woronora 150714 Chlorine tablet dosing sheet JUN14_BOXES Percentile charts for reservoirs Woronora Disinfection Review Minutes for March 14 Rechlorination Plant Monthly Report - June 2014 Chlorine titrator calibration records Chlorine colorimeter calibration records Compliance Accountability Register iconn_ud_dd_069868 (under review) WPIMS5228 Drinking Water Quality event Management Plan Triggers notifications and actions for adverse WQ results Exercise Flooded Report – Final Catchment to Tap Risk Framework Risk Policy Source Risk Assessment Warragamba Western Water Forum Minutes_April 2014 Minutes of the Prospect Operation Interface Meeting No 76 held on 20 March 2014 Connection report Corrective Action Report Oran Park TM Welling Drive site inspection audit Example Construction Audit Flynn Ave Middleton grange CTT risk register_summary_IPART 0212 Risk Register NFRP Warragamba Site Risk Register_current SWGC Turner Road Detailed Planning Options Report FINAL – 070120. 		

Summary of reasons for grade

The systems and processes that Sydney Water has in place are comprehensive and ensures that Sydney Water is well informed of the performance of its drinking water supply and is able to respond proactively to any trends, potential or actual incidents. It includes documented procedures for the planning, delivery and acceptance of new assets including reservoirs and reticulation networks. An appropriate risk based method, compliant with Element 2 of the ADWG is deployed and implemented from corporate to scheme and asset specific.

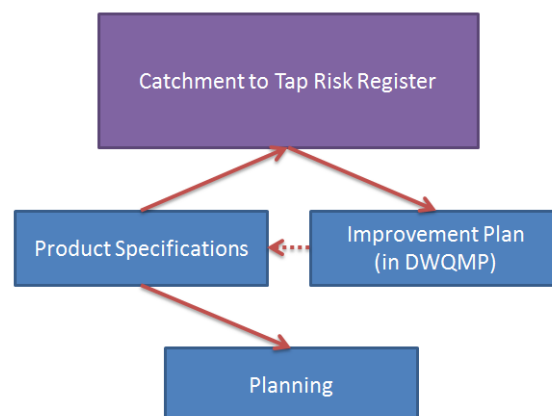
Discussion and notes

Water supplied during the audit period was generally compliant with the ADWG. Non-compliance is reported appropriately and in accordance with documented and agreed processes. All of the 13 water delivery systems fully complied with the ADWG 2011 health long term compliance measures. Trigger levels and actions are identified in the DWQ Event Management Plan and Triggers, Notifications and Actions for Adverse Water Quality Events SOP. Monitoring is conducted in accordance with DW Operational monitoring plan 2013-14 Final. The Sydney Water IICATS system has alarm set points based on action triggers and CCPs. Alarms are monitored 24/7 by the Systems Operation Centre.

Incidents and follow up actions are immediately recorded in the Sydney Water Incident Recording and Learnings System (SWIRL) which is accessed by NSW Health. Periodic water quality reporting to NSW Health includes all water quality reporting, as well as exceptions. Clause 2.1 in entirety demonstrates how Sydney Water is managing the total water system, and addressing the Elements of the ADWG.

The DWQMP 2010 – 2015 outlines strategies to maintain drinking water quality performance, and to manage emerging water industry issues that may arise over the period of the Plan. The Five-year DWQMP is based on managing drinking water quality in accordance with the Framework for Management of Drinking Water Quality. Sydney Water's Corporate Risk Management Policy outlines the organisation's approach to assessing and addressing risks. The Sydney Catchment Authority and Sydney Water, together with Build Own Operate (BOO) contractors and NSW Health, undertook a comprehensive 'catchment to tap' risk assessment in 2009-2010 for water quality for each barrier. Outcomes from this risk assessment were used to update the SCA's Raw Drinking Water Quality Management Framework and Sydney Water's Five-year DWQMP. Major catchment-to-tap risk reviews are undertaken every five years, and the next iteration is in progress. Under Sydney Water's standard operating procedure for drinking water quality risk management, additional detailed risk assessments are done at Water Treatment Plants (WTPs) and in the water distribution networks. Operating and maintenance procedures, like the Drinking Water Quality Event Management Standard Operating Procedure, are controlled via the Integrated Management System. Staff directly involved in managing water quality are trained in relevant procedures contained in the Integrated Management System. In relation to Incident Management training, Sydney Water has a program of regular training and joint exercises with key stakeholders. In August 2013 a joint exercise was undertaken with Sydney Catchment Authority and NSW Health for the management of a high turbidity event due to flooding. The incident de-brief noted a range of actions and recommendations for improvement.

Risk drives planning, as shown in the diagram below. Planning takes place to meet the product specifications, which are informed by the improvement plan (in DWQMP) and the Catchment to Tap Risk Register.



At the project inception risks are identified and a risk register is started which will be updated throughout the detailed planning process below. This was reviewed via the Turner Road example.

Options development (based on preferred servicing strategy) are analysed based on lowest cost with

acceptable risk to Sydney Water.

Environmental, Social, Quality, Geotechnical and Engineering Constraints and Opportunities are part of the process to identify the preferred option for pipeline routes and sites for Water Pumping Stations and Reservoirs. The Risk Assessment is updated and the highest risks together with total lifecycle costs are used to inform the preferred option. This is then followed by a Value Engineering Study; a Needs Specification / Concept Design; a Review of Environmental Factors (REF) and Geotechnical Investigations.

Accepting new reticulation services follows Urban Growth's Managing New Development process. The Managing New Development Process comprises a group of tasks that need to be completed when Sydney Water systems need to be extended, adjusted, amplified or protected because of development or other construction activity. As a condition of development consent/approval from Councils, developers or applicants are required to obtain a section 73 compliance certificate from Sydney Water or relevant consent authority. This is to ensure water and wastewater facilities have been made or are available prior to council issuing an occupation certificate for the development. Sydney Water issues a notice of requirements to the applicant that specifies requirements that must be met prior to the issue of the section 73 compliance certificate. This may include the construction or upsizing of reticulation mains to serve the development.

Disinfection is undertaken by Service Delivery Division under guidelines that are administered by the Water and Recycled Water Products Team in Networks. The Land Development Manual describes what to do when land is subdivided or developed within Sydney Water's area of operations, the developer may need to obtain Sydney Water's Section 73 Compliance Certificate. The Consent Authority will tell the developer about this requirement when they issue the Development Consent. This manual provides comprehensive information about how a developer can obtain the Section 73 Certificate. It details the process, related policies, forms, fees and charges.

Accredited providers are requested and listed approximately every two years and must provide evidence of QMS certification. Asset inspection services are undertaken by Sydney Water teams for construction audit / pre-commission audit / connection audit / post connection audit. Examples were reviewed for the South West growth area. Corrective actions are generated as may be required to manage any issues with listed providers. The works are constructed by listed providers (http://www.sydneywater.com.au/ProviderInformation/wsc/cons_ext_print.htm).

The process to determine new trunk water assets (main, reservoirs, water pumping stations, booster pumping stations) – follows:

- Area Plans and Growth Servicing Strategies are completed to identify preferred high level servicing strategy for servicing growth
- The Servicing Strategy is updated at least every 5 years (or more regularly if needed to be responsive) to determine the next stages of assets to be constructed. The preferred strategy is selected based on lowest cost with acceptable risk to Sydney Water
- The Strategy will trigger a define Business Case which provides funding for the Detailed Planning Process. These assets are also identified in Sydney Water's Growth Servicing Plans (GSP) for developers.

The purpose of the SOP WPIMS5027 Commissioning new mains is to ensure that all new Sydney Water mains are introduced into service with the objective of protecting public health. Mains laid by Sydney Water are disinfected and tested prior to being placed into service. Networks Alliance water main renewal projects are exempt. This process eliminates the need for disinfection and testing prior to bringing the main into service for 100mm, 150mm, and up to and including 200mm diameter mains. This process must be carried out in accordance with SOP WPMIS5268 Commissioning of Water Main Renewals by Networks Alliance. (WPIMS5268_R2 Commissioning Optimisation of Water Main Renewals NWA). The purpose of this SOP is to standardise the construction and connection procedures for water mains to allow them to be put into service as soon as possible after completion of the main laying.

As chlorine is a key parameter to ensure disinfection of new mains - Chlorine titrator calibration records; Chlorine colorimeter calibration records; FS075v10 Determination of Chlorine Residuals in the field are used.

WPIMS5041 Manual Disinfection of Service Reservoirs: Disinfection is required to meet the health-related aspects of the Operating Licence (OL) and to minimise the risk of waterborne diseases from the water supply. Sydney Water has specific chlorine targets documented in WPIMS5387 R1 "Asset Management Water Systems Drinking Water Disinfection Management Strategy (2006-2010)" in Section 5.4.3.1. The primary objective of the design of a reservoir-dosing program is to meet the requirements of these chlorine targets. The aim of this SOP is to ensure best work practices in terms of reservoir selection, design of programme (both routine and reactive), dosing technology and monitoring to effectively manage manual disinfection of service reservoirs across all areas of Distribution, Water Network; and to achieve capable and consistent disinfection residuals throughout

the water distribution system.

WPIMS5261 Certifying WQ when commissioning-returning reservoirs into service. The purpose of this Standard Operating Procedure (SOP) is: to ensure public health is protected through Sydney Water's best work practices in terms of monitoring and maintaining reservoir water quality to meet the guideline values in the Australian Drinking Water Guidelines; to achieve consistent work practices within Sydney Water for commissioning or returning of reservoirs to service; to clearly define the procedure to be followed, and the acceptance criteria to be adopted prior to the reservoir being commissioned or returned to service. These work to ensure a safe and reliable product and water quality for human health protection.

The Turner Road Water Project is an example of how planning considers Drinking Water Quality. The project included water age analysis to determine water quality requirements. This work resulted in a chlorination plant at the reservoir site as well as separate inlet and outlet mains to meet water quality requirements.

Recommendation

There are no recommendations in relation to this sub-clause.

Opportunities for improvement

Sydney Water conducts well informed and detailed incident de-briefs and reviews, as well as reviews of scenarios. From these, a range of recommendations and actions are identified for development and implementation, assigned to agency and role, with dates for completion. The recommendations and actions from the Flooding Incident Mock Event (August 2013) and the Macarthur Water Filtration Plant Incident (November 2013) have not been implemented in a timely manner. Timely implementation of these recommendations and actions are necessary for Sydney Water to further mitigate risk. The risk to public health was not assessed as being substantially elevated since operator training and awareness, as well as responsiveness, is very strong. The actions noted were substantially of an improvement basis and not deemed as critical to a public health response. . It is suggested that the actions be assigned due dates in a risk based manner, and that these dates be met. High risks should be expected to be actioned within 1 month and all actions within 3 months.

Detailed Audit Findings		Drinking Water Quality
Sub-Clause	Requirement	Compliance Grade
2.1f	Sydney Water must report on Drinking Water quality monitoring in the manner and form outlined in the Reporting Manual.	Full
Risk		Target for full compliance
Water quality monitoring is required for both short term notifications and longer term trends. It provides assurance to regulatory agencies, stakeholders and the community.		Reports to be provided as required in the Reporting Manual, and in accordance with the ADWG.
Evidence sighted		
<ul style="list-style-type: none">• Section 6.1 of Annual Drinking Water Quality Monitoring Plan 2013-14• Quarterly Drinking Water Quality Monitoring Reports for NSW Health• Annual report: http://www.sydneywater.com.au/SW/about-us/our-publications/annual-report/index.htm• Fluoride Report Combined - May 2014• Fluoride Report Combined - June 2014• Quarterly Drinking Water Quality Reports: http://www.sydneywater.com.au/SW/water-the-environment/how-we-manage-sydney-s-water/waterquality/our-monitoring-program/index.htm• 3rd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health Dropbox notification• Daily Exception Report FW 2014-08-25 15 18 37 602 - Automated email notification from AMD's Actions Database• <i>E. coli</i> investigation report 2014-03-03 Dural Res WS0039.• Revised - 4th Quarterly Drinking Water Quality Monitoring Report to NSW Health Dropbox notification• BMIS0038 SCA and SW Protocol for response to the detection of <i>Cryptosporidium</i> and <i>Giardia</i> in Drinking water Supply• June 14 Monthly Disinfection Report• Examples - North Richmond WFP positive <i>Cryptosporidium</i> notifications 10/07/2013 and 30/04/2014:<ul style="list-style-type: none">— Nth Richmond HRN12_TAP 2013 07 10— Nth Richmond positive notification - 2013 07 02— Nth Richmond Follow up samples - 2013 07 02— Nth Richmond HRN12_TAP 2014 04 30— Nth Richmond positive notification - 2014 04 30— Nth Richmond Follow up samples - 2014 04 30.• Macarthur Debrief_Final_11072014.		
Summary of reasons for grade		
Sydney Water has complied with all requirements set out in the Reporting Manual, which meets the ADWG. A significant amount of verification and operational monitoring and reporting is undertaken. This is complimented by incident and alert notification reporting, which is highly automated. Reporting was conducted in a timely manner and appropriate to the satisfaction of NSW Health and in compliance with the ADWG.		

Discussion and notes

Sydney Water produces detailed summary reports of drinking water quality monitoring and these reports are made available to the public on the Sydney Water website around 4 weeks after the end of each quarter. The 1st Summary of Quarterly Drinking Water Quality Report (July 2013 to September 2013) was completed and uploaded onto the website on 28 October 2013. The 2nd Summary of Quarterly Drinking Water Quality Report (October 2013 to December 2013) was completed and uploaded onto website on 28 January 2014. The 3rd Summary of Quarterly Drinking Water Quality Report (January 2014 to March 2014) was completed and uploaded onto website on 28 April 2014. The 4th Summary of Quarterly Drinking Water Quality Report (April 2014 to June 2014) was uploaded onto website on 28 July 2014. Sydney Water also produces a Quarterly Drinking Water Quality Monitoring Report including exceptions, and delivers to NSW Health within 6 weeks of the end of the quarter.

The 1st Quarterly Drinking Water Quality Monitoring Report to NSW Health (July 2013 to September 2013) was completed and sent to NSW Health on 11 October 2013. The 2nd Quarterly Drinking Water Quality Monitoring Report to NSW Health (October 2013 to December 2013) was sent on 11 February 2013. The 3rd Quarterly Drinking Water Quality Monitoring Report to NSW Health (January to March 2014) was completed and sent on 9 May 2014. The 4th Quarterly Drinking Water Quality Monitoring Report to NSW Health (April to June 2014) is in progress and will be sent by 11 August 2014.

An Annual report on the Implementation of the Five Year DWQMP is to be provided to NSW Health and IPART on 1 October each year. The annual report for 2012-13 was produced by Sydney Water and delivered to NSW Health on 30 September 2013 and IPART on 27 September 2013. The annual report for 2013-14 is on schedule to be delivered to NSW Health and IPART by 1 October 2014. Sydney Water must also provide a monthly report in the second week of each month of fluoride monitoring to NSW Health in accordance with the Code of Practice for Fluoridation of Public Water Supplies. All fluoride reports for the months of July 2013 to June 2014 were issued to NSW Health on time as per timeline in Reporting Manual.

Quarterly Drinking Water Quality Reports are published quarterly on the website. The report covers water quality results and performance from inflows, storages, WFPs and the customer supply systems (customers' taps) for the quarter and the rolling 12 months.

Sydney Water monitors and reports performance on individual delivery systems basis, as well as an overall combined system basis to NSW Health quarterly. Details of the extent and nature of any exception from the health guideline values and aesthetic values that have been agreed with NSW Health and an analysis of the risk to public health posed is provided as part of the quarterly and annual reports to NSW Health and IPART.

Incidents are reported via the secure Incident Reporting (SWIRL) website and a summary is included in quarterly reports as per the Drinking Water Quality Incident Management SOP (WPIMS5228). Incident and notification reports were required for some water quality events. Auto email notifications occur for timely responsiveness. Incident de-brief are held for events, such as the Macarthur Water Filtration Plant high turbidity event in November 2013.

Recommendation

There are no recommendations in relation to this sub-clause.

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings		Recycled Water Quality		
Sub-Clause		Requirement	Compliance Grade	
2.2a	Sydney Water must manage Recycled Water quality in accordance with the Australian Guidelines for Water Recycling (unless NSW Health specifies otherwise) to the satisfaction of NSW Health.		High	Compliance
Risk		Target for full compliance		
Non-compliance increases public health and environmental risks associated with the use of recycled water.		Compliance with the requirements of the Australian Guidelines for Water Recycling.		
Evidence sighted				
<ul style="list-style-type: none">Quality Management Plan Recycled Water SchemeEmail - From: BYLEVELD, Paul [mailto:pbyle@doh.health.nsw.gov.au] Sent: Wednesday, 19 November 2014 6:28 PM To: Kaye Power Cc: JARVIS, Leslie Subject: Draft report Sydney Water Operational Audit 13-14Email - From: JARVIS, Leslie [mailto:ljav@doh.health.nsw.gov.au] Sent: Thursday, 20 November 2014 12:57 PM To: Kaye Power Cc: BYLEVELD, Paul Subject: RE: Draft report Sydney Water Operational Audit 13-14RWQMP West Camden V1.6-FinalRecycled Water Monitoring 2013-14Recycled Water Monitoring plan approvals - signed pg_20025065Final_RWQ_Report_Health_1314_1st Quarter Final1st Quarter Drinking Water and Recycled Water Quality Reports to NSW Health – email evidence of submissionFinal_RWQ_Report_Health_1314_2nd Quarter – signed2nd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health – email evidence of submissionQuarterly Recyled Water Report to NSW Health Q3 2013-143rd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health – email evidence of submissionQuarterly recycled water quality monitoring report for NSW Health 2013-2014 Quarter FourRevised - 4th Quarterly Drinking Water Quality Monitoring Report to NSW HealthLabware Notification - Recycled Water 2013 08 05Labware Notification - Recycled Water 2013 08 05 A&R follow-upLabware Notification - Recycled Water 2014 02 06West Camden Irrigation SchemeWest Camden Irrigation SchemeAugust exception report - Recycled Water for Corporate Performance ReportDump of Recycled Water Quality Incidents in SWIRL 2013_14SWIRL Incident # INC-2467 and INC-4004RWQMP Liverpool V2 IPART Audit action No2 changes acceptedReceipt of Liverpool plan by DoHElizabeth Macathur Supply Scheme 4th Quarterly Client ReportDraft SCRGW Recycled Water Quality Management Plan Draft v10LGC Stat Dec June 2014Revised LGC Stat Dec v1Revised WFRACECOURSE stat Dec_20131025_102524WFRACECOURSE stat Dec_20140701_091241				

- Customer inspection report checklist BCS0342
- EMAI Recycled Water Agreement (Irrigation)
- EMAI Recycled Water Agreement Signature Page dated 14 May 12
- Existing CamdenCouncil-RWAgreement_ signed-with variation
- New draft Camden Council Recycled Water Agreement (Irrigation)
- Minutes JOG 31 October 2013_final draft
- Minutes JOG 17 February 2014_Final
- Liquid Stream Plant Monitoring Workflow SOP
- WR5271 Recycled Water Quality EMP v7 191112
- Castle Hill Country Club Recycled Water Annual Return 2012-13(jp)
- SKMBT_C28014071511370
- SKMBT_C28013102516140
- Sydney Water Recycled Water Annual Return (jp) 18th June 2014
- Recycled Water Quality (including_stormwater)_Folio of Progress 2013-14
- 2013-06-18 Business review report - Sydney Water_WPIMS-QMS and WWIMS-EMS-final
- 2014-07-04-Business review report - SDIMS-Stage 2 Rev3
- AMQ0104-Five year RWQ Management Plan 2009-2014
- Recycled Water Ref Doc2a RWQMP West Camden V1.6-Sign off
- Recycled Water Ref Doc36 West Camden WRP_ System Performance Summary _ 2012 – 2013
- Recycled Water Ref Doc37 recycled water supply agreement_sydney water
- SDIMS 101482_AS-NZS ISO 9001-2008- Quality management systems – Requirements
- Past Operating Licence Compliance Audit Reports 2010 to 2013/14.

Summary of reasons for grade – Clause 2.2a

Sydney Water has achieved High Compliance in meeting its licence requirements. Sydney Water manages 15 recycled water schemes, and more are being commissioned. Corporate and Scheme Specific Recycled Water Quality Management Plans have been developed in accordance with the 12 Elements of the AGWR. These Plans are undergoing a rolling four-year program of review, which will update each Element. It is the auditor's opinion that a more timely program of review would further demonstrate Sydney Water's commitment to 2 of its 3 stated principal objectives, being: *'to protect public health'* and *'to protect the environment'*.¹

NSW Health confirms satisfaction with the Plans submitted. NSW Health has provided approval of the plans as meeting the requirements of the *Australian Guidelines for Water Recycling*, 2006. NSW Health confirms satisfaction with the four-year program of review and submission. NSW Health advises that compliance reporting through the Joint Operational Group Meetings, the Quarterly Recycled Water Quality Monitoring Report and recycled water incident reports demonstrates that implementation of the AGWR is providing for protection of public health and the environment.

Elements 10, 11 and 12 of the AGWR intend that there is an ongoing demonstrated, documented and implemented commitment to document control, currency, evaluation of results and audit, as well as frequent review and continual improvement. This is to be supported by a demonstrated and documented commitment from executive and senior management. In this manner, implementation of Plans can be demonstrated to meet the AGWR. It is the auditor's opinion that the intention of the AGWR is not met as most Plans and Elements are not current and have not been updated as intended, over successive operating licence audit periods.

Recycled water quality monitoring outcomes provides a level of assurance that public health and environmental risk was protected during the audit period.

Progress has been made on the previous audit recommendations and there is a program in place for completion of site end user inspections.

¹ <http://www.sydneywater.com.au/SW/about-us/our-organisation/who-we-are/index.htm>

Discussion and notes

Sydney Water supplies recycled water for a number of non-potable purposes including parks and golf course irrigation, residential use (Rouse Hill) and some industrial / agricultural applications (Bluescope Steel). Under clause 2.2 of the Licence, Sydney Water is generally required to comply with the Australian Guidelines for Water Recycling, 2006 (Phase 1). However, where NSW Health considers it appropriate, it may vary or amend the application of these guidelines to take account of the circumstances of specific recycled water services provided by Sydney Water and/or recycled water policy and/or practices within NSW. The Reporting Manual outlines reporting requirements to NSW Health and IPART on recycled water quality monitoring.

Sydney Water has endorsed Recycled Water Quality Management Plans in accordance with the AGWR 2006 to the general satisfaction of NSW Health. There are areas of improvement understood between Sydney Water and NSW Health, and based on the 2012/13 audit. These are particularly associated with verification and validation programs. Each of the current 15 site specific Recycled Water Quality Management Plans have been endorsed by NSW Health. Sydney Water is awaiting comments from NSW Health on a revised Liverpool Plan (submitted June 2014).

The key elements of the management system are set out in the "Quality Management Plan – Recycled Water Schemes" together with the scheme specific Recycled Water Quality Management Plans. The version control notes the last update as '29 July 2009'. The filename suggests a more recent update being _final GL edits 09-10-19. It is noted as the 'original creation'. The RWQMP is also Appendix 3 of the 5 Year Recycled Water Management Plan and Sydney Water notes this is not required to be updated till the following 5 year period. It is noted that most Elements of the Plan requires update and that this has not been frequently undertaken. Sydney Water advises that this will occur during the next review period. For example (not exhaustive):

- Table 1.1 - the named agencies in the Introduction should be revised
- Section 1.2 is no longer up to date
- Table 1-2 – are these still the appropriate listings for internal stakeholders?
- Section 3.1.1 – web links don't work.

Overview

The Five-Year Recycled Water Quality Management Plan (RWQMP) is a strategic planning document. Its intent is to provide an overarching framework for the management of recycled water quality in Sydney Water. This plan provides the framework for the functional RWQMPs developed for each scheme. Its focus is on strategies and processes rather than specific outcomes and detailed reporting of scheme performance. This plan outlines how Sydney Water's business processes will be implemented at a functional level. The five-year plan is based on the strategic directions already in place and outlines Sydney Water's strategy for managing recycled water quality over the next five years. Scheme Specific Plans exist for all 15 operating schemes and the West Camden Plan was subject to detail review and site audit.

The Draft SCRGC Recycled Water Quality Management Plan Draft v10, February 2014 provides an example of a new developing Recycled Water Quality Management Plan for a scheme to be added to the Sydney Water network. It covers all 12 Elements of the AGWR and has been prepared with the support of a third party. The Stonecutters Ridge Golf Course (SCRGC) is an 18 hole championship golf course, owned and operated by SCRGC Ltd. It is a 6,335 m par 72 course, with over 90 percent of the turf areas utilising drought tolerant grasses. The golf course development will include a recycled water system for irrigation of 35 hectares of turf, with recycled water sourced from Sydney Water's Quakers Hill Water Recycling Plant (WRP). The document appears to reference its relationship and procedures between Sydney Water and SCRGC well. It references the Sydney Water Corporate Plan which is subject to the four-year rolling review program before being updated.

Element 1

Joint Operational Group meetings are held and recycled water is addressed. At the 17 February 2014 meeting, the following was noted in regard to recycled water: *NSW Health again requested information in relation to the Rouse Hill cross connection previously advised. Sydney Water to provide further information. Sydney Water discussed the issue of the difficulties in meeting the CCP limit at the Rouse Hill scheme recycled reservoirs when potable water top ups were made. NSW Health advised their primary concern was ensuring recycled water was adequately disinfected. It was agreed that SWC would amend the Recycled Water Management Plan accordingly and submit to NSW Health for re-approval.*

Sydney Water noted progress against this action as - CCP for chlorine exists on reservoirs in Rouse Hill with minimum and maximum values and these are not relevant when using drinking water. Clarification is required to determine if this CCP can be 'removed' whilst using drinking water in the supply. A protocol would need to be documented and implemented for managing the 'on' and 'off' nature of the CCP.

Element 2

Each scheme Plan has been developed based on the stated end use, the level of treatment required (AGWR), the planned asset arrangements, and existing performance data where available. This has been risk assessed, and risk control measures identified. Risks are noted both within the Corporate Plan and the Scheme Specific Plans. Risk control measures are listed and the residual risk categorised according to Sydney Water's risk procedures. These are intended to be updated during the four-year rolling review, and do not appear to have been subject to a known frequency of review since their development (West Camden reviewed and others referred to in interview with Sydney Water staff).

Interview with Sydney Water staff noted that the risk assessment has not been updated on Scheme Specific Plans, except for the Wollongong Stage 1 and Stage 2 schemes, and Liverpool scheme.

Element 3

Critical Control Points (CCPs) and other operating targets are identified in the Scheme Specific Plan. The Critical Control Points for West Camden as noted in its Recycled Water Quality Management Plan are different to those within the SCADA. Sydney Water operate the SCADA at narrower limits than the CCP band. For example the CCP1 DO controls state 1.5-3.0 in the RWQMP Table 3-3 and are set at 2.2 – 2.5 mg/L in the SCADA. For total chlorine disinfection Table 3.3 reflects 0 or > 5 mg/L and SCADA as high at 5 mg/L. It is more generally accepted to set the minimum at a level that ensures primary kill disinfection at all times. The AGWR does allow CCPs to be set showing both an operating limit, a first action limit and a second action limit. For example – an operating range for pH might be 7.0 to 7.8. With a low alarm set at 6.8 and a high alarm at 8.0 (first action limit – pH control commences, or monitor). Cease supply (second action limit) would occur at low alarm of 6.5 and high alarm of 8.5.

It is the auditor's opinion that having differing control and set points could lead to some confusion in alarm situations.

Element 5

Verification monitoring is in place for all schemes as per the individual scheme RWQMPs and annual recycle water monitoring plan.

Recycled water quality monitoring showed some exceedances across a range of parameters including *Cryptosporidium*, BOD, pH, *E. coli* and phosphorus. No exceedances were found to be of concern with regard to public health or environmental protection for varying reasons. For example the *Cryptosporidium* when detected was associated with a timeline where the UV was operating within its CCP and validated range, meaning that the pathogen would be considered inactivated. The BOD, pH and phosphorus were below longer term percentiles and represented single sample events.

An *E. coli* count of 1,700 orgs/100 mL was recorded on 19 June 2014, which exceeded the operating performance target of <1,000 orgs/100 mL. However, the year to date (audit period) 50thile count of *E. coli* in the recycled water supplied by Picton WRP (140 orgs/100 mL) complies with the annual operating performance target of <1,000 orgs/100 mL (50thile). As *E. coli* is an indicator of pathogens of acute effect, relying on the 50thile is not appropriate for this parameter (although consistent with the endorsed Plan) in the auditors opinion. This should possibly be considered as an event for any exception result, however we do note that this is related to irrigation of a paddock and there is no substantive risk to human health exposure.

Element 6

Exception reporting is the focus and is provided on a scheme basis. The monitoring results are provided to the operating teams within Sydney Water, the various customers, and to NSW Health on a regular basis (normally quarterly). Any exceptions are identified, and the relevant operations staff notified immediately. Depending on the exception this may be entered into the incident management system including details of any actions taken, performance of CCPs etc which NSW Health is notified of automatically and has direct access to.

Element 8 (and Element 2)

Consistency does not exist between customer controls in the West Camden Recycled Water Quality Management Plan and associated Customer Agreements and further alignment would be positive. In particular the end uses and customer controls are not up to date and alignment would provide clarity. Table ES 4 CCP 3 and CCP4 note site controls that are not listed in the Customer Agreement and there are controls listed in the End User Agreements not listed in the CCP Table. The customer controls are relied upon to achieve the required public health protection in accordance with the Log Reduction Values, particularly for protozoa (Table 3.1 in the West Camden Plan). There is also a noted issue with keeping up to date with change roles and responsibilities for the Customer Agreements. For example, it was noted that when staff at Camden Council changed, there was no training or awareness hand over regarding the Customer Agreement for the recycled water scheme operated by them for irrigating sports grounds. The recycled water quality is tied to the controls applied at site in order to support public safety. There is a public health risk where these controls are not applied and this responsibility sits with both the supplier and customer.

West Camden operators did not have up to date contact details. It is understood that Sydney Water Business Services Division holds this detail but this was not sighted during the audit.

Customer Agreements for all schemes are to be subject to an Audit schedule and checklist and are to be audited in Summer 2014.

Interview with Sydney Water staff noted that alignment between Customer Agreements and Site Controls in the scheme specific Plans has not been update routinely.

Element 9

Not all Recycled Water schemes have been subject to validation and documented verifiable evidence for all assumptions. As part of one of the last IPART audit actions a detailed review of each scheme is to be undertaken. The reliance between once off validation and/or regular site verification monitoring will be assessed as part of this review where necessary based on risk assessment, existing performance, and the associated costs. There is a procedure written on how to conduct validation and none has been done for the last 18 months. There is no documented process or evidence of determination of how choosing not to validate has been determined on a risk basis.

Validation of the chlorine disinfection Ct has not been conducted although understood to be underway for the West Camden scheme. Chlorination is a primary control for bacteria and virus control. Validation of the tertiary filtration process has not been undertaken, which is a critical control to reduce protozoa. Site customer controls have not been reviewed and updated and are relied upon for total LRV compliance.

Validation monitoring has not been carried out for all schemes in which cases the AGWR guidance Table 3.4 has been used. This is in accordance with the hierarchical approach to scheme validation (Element 9) described in the 5 year RWQMP.

Interview with Sydney Water staff noted that validation has not occurred at all sites and is subject to the four-year rolling review program endorsed by NSW Health.

Element 10

Individual Recycled Water Quality Management Plans are read in conjunction with the corporate plan and thereby are considered out of date as the Corporate Plan is awaiting review and update. Although only the West Camden Plan was reviewed in detail, there were several aspects that were out of date. RWQMP West Camden V1.6-Final provides an example site specific Plan. It is Version 1.6 dated August 2012. Section 1.3 and 2.1.3 contains yellow highlight and the status of the Customer Agreement is not clear. The water quality data analysis (Section 2.3) covers a period to 2011 and it is not clear that further analysis since then has been undertaken. This data analysis may no longer be indicative of the influent quality.

Interview with Sydney Water staff advised that all Plans are not current and are subject to the NSW Health endorsed four-year rolling program of review.

Elements 10, 11 and 12

Service Delivery has commenced a four-year rolling program for the systematic review of all Recycled Water Quality Management Plans. Reviews are currently in progress for Wollongong Stage 1 (Bluescope Reverse Osmosis scheme) - approximately 70% complete and Wollongong Stage 2 (golf course and coal loader scheme) - approximately 50% complete. The review of the Recycled Water Quality Management Plans for these two schemes is expected to be finalised by December 2014.

NSW Health has endorsed this four-year rolling program of review.

It is the auditor's opinion that the intention of the AGWR is not met as most Plans and Elements are not current and have not been updated as intended, over successive operating licence audit periods.

Past Audit Findings

There has been ongoing comment as to the status and accuracy of Recycled Water Quality Management Plans over past audits. There have been ongoing statements of commitment made by Sydney Water with regard to verification and validation monitoring and this has not been substantially progressed. There is a trend evident in not progressing actions, commitments and recommendations associated with recycled water management in a manner considered timely by the auditor with update and review not undertaken.

In the 2011/12 audit – the following was noted: Sydney Water meets the requirements of the *Australian Guidelines for Water Recycling (AGWR): Managing Health and Environmental Risks (Phase 1) 2006 (NRMHC, EPHC, AHMC)*. Sydney Water is carrying out considerable work to continue to enhance its meeting of these requirements mostly associated with processes and management and control of chlorine associated contact time (Ct) to ensure appropriate disinfection is achieved. Sydney Water is currently entering these schemes into their KnowRisk (Risk register and ranking tool) platform which will strengthen risk management.

The Ct calculations have not been shown to have progressed during this audit period.

In the 2010/11 audit – the following was noted - Prior to 31 March 2012, develop an agreed timetable with NSW Health to complete all RWQMPs for all recycled water schemes and have NSW Health endorse the health aspects of all schemes. Although this was achieved for endorsement of the documentation of Plans, their implementation and currency is of concern.

Auditor Recommendations from 2012/13 Audit

1. *Sydney Water's internal processes for ensuring compliance of customers' operating recycled water schemes (classified municipal use - restricted access and application, or municipal use - enhanced restrictions on access and application) with their contract should be strengthened. At the moment, Sydney Water relies on the Annual Declarations from customers to manage the potential exposure risks or inappropriate uses of recycled water.*

— *As a minimum, Annual Declarations forms need to be strengthened and all customers advised on how to properly complete their Annual Declarations.*

Where appropriate, customers are to re-submit declarations for 2012/13 that have not been completed properly

— *Additional procedures, such as site inspections for signage and usage controls, should be considered.*

An inspection checklist has been drawn up. Recommend – that the Checklist includes the following information:

- Location
- Date
- Name of Inspector
- Name of Inspectee.

The intention is to carry out up to two site inspections per annum. Inspections have not been planned until coming into the summer months (2014) when recycled water is in greater and more consistent use (ie. customer controls may not be in use if recycled water is not being used).

A Business Customer Service officer has been allocated as the liaison point for each recycled water industrial/commercial scheme customer. These officers maintain contact as required. Each industrial/commercial customer has a separate Customer Agreement which includes requirements concerning use of recycled water.

Four customers who had not completed their declarations correctly were required to resubmit them. They are Wollongong Golf Club and Castle Hill Golf Club (declarations originally not witnessed by the correct party), and Liverpool Golf Club and Warwick Farm Racecourse (incorrectly dated their declarations for the year ahead). The revised declarations have all been received.

This audit recommendation cannot be fully closed but progress has been made and there is sufficient evidence to suggest this can be closed by June 2015.

2. *The Recycled Water Quality Management Plan should be updated to fully reflect how Sydney Water's Liverpool recycled water plant is configured and how it is achieving breakpoint chlorination. It also needs to specify target limits, as well as critical limits. This should be given to NSW Health for endorsement.*

The Liverpool RWQMP was updated to reflect the physical changes that had been occurring at the site (eg. new chlorine contact tank). This updated Plan was supplied to NSW Health at the end of June 2014. No response has been received from NSW Health to date. Phone interview confirms that NSW Health is likely to endorse the Plan shortly.

This audit recommendation has been met and can be considered closed.

3. *Following the treatment plant verification program, the Recycled Water Quality Management Plans should be reviewed and updated, where appropriate, and submitted to NSW Health for endorsement.*

There is a proposed four year rolling program of review, which has been endorsed by NSW Health

This audit recommendation can be closed.

Recommendation

It is recommended that the review and update of Recycled Water Quality Management Plans that is being implemented via the four-year rolling program be audited for progress in both documentation development and scheme specific implementation.

It is recommended that the Site Inspection Checklists be updated to include the names and contacts details of the inspector and 'inspectee' and note that date and conditions during the inspection. That a number of site inspection checklists are audited and field verified during the next audit period.

It is recommended that the next audit period consider a site verification audit of the Recycled Water Quality Management Plan for the Stonecutters Ridge scheme.

Opportunities for improvement

The Rouse Hill reservoir CCPs for chlorine are considered not relevant when supplied with drinking water rather than recycled water. A protocol should be agreed, documented and implemented between Sydney Water and NSW Health for 'inactivating' this CCP when drinking water is in use and for transitioning to and from supply of recycled water, and thereby 'activating' the CCP. It is understood that only potable water may be supplied for long durations.

It is recommended that CCPs as listed in Scheme Specific Plans reflect the operating limits and operating actions taken across the ranges implemented to mitigate confusion in an alarm situation and to better demonstrate implementation of element 3. Further, a low alarm set point of 0 mg/L for chlorine in treated chlorinated recycled water is not appropriate to ensure disinfection and should be raised.

Detailed Audit Findings		Recycled Water Quality
Sub-Clause	Requirement	Compliance Grade
2.2b	Sydney Water must manage Recycled Water quality in accordance with any other guidelines specified by NSW Health to the satisfaction of IPART.	Full
Risk		Target for full compliance
Non-compliance increases public health and environmental risks associated with the use of recycled water.		Compliance with the requirements of any other guidelines specified by NSW Health.
Evidence sighted		
<ul style="list-style-type: none"> Recycled Water Quality (including_stormwater)_Folio of Progress 2013-14 NSW Health Letter dated 27 August 2014. 		
Summary of reasons for grade		
There were no other requirements specified by NSW Health in the audit period. Recycled water is noted to be managed to the satisfaction of NSW Health.		
Discussion and notes		
<p>There were no other requirements specified by NSW Health in the audit period. Sydney Water is not aware of any concerns from NSW Health over the review program instigated in response to one of the last IPART audit actions.</p> <p>NSW Health confirms satisfaction with the Plans submitted (which have been endorsed), and the four-year program of review and submission. NSW Health advises that compliance reporting through the Joint Operational Group Meetings, the Quarterly Recycled Water Quality Monitoring Report and recycled water incident reports demonstrates that implementation of the AGWR is providing for protection of public health and the environment.</p> <p>Various details have been discussed informally with NSW Health officers as they have arisen. Any issues requiring formal response other than endorsement of submitted plans will be raised via the Joint Operational Group meetings.</p>		
Recommendation		
There are no recommendations associated with this sub-clause.		
Opportunities for improvement		
There are no opportunities for improvement associated with this sub-clause.		

Detailed Audit Findings		Recycled Water Quality
Sub-Clause	Requirement	Compliance Grade
2.2c	Sydney Water must report on Recycled Water quality monitoring in the manner and form outlined in the Reporting Manual.	Full
Risk		Target for full compliance
Reporting on recycled water quality promotes public confidence in the use of recycled water quality and assures regulatory agencies.		Reports have been provided as required in the Reporting Manual and in accordance with Element 10 of the AGWR.
Evidence sighted		
<ul style="list-style-type: none"> Final_RWQ_Report_Health_1314_1st Quarter Final 1st Quarter Drinking Water and Recycled Water Quality Reports to NSW Health – email evidence of submission Final_RWQ_Report_Health_1314_2nd Quarter – signed 2nd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health – email evidence of submission Quarterly Recycled Water Report to NSW Health Q3 2013-14 3rd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health – email evidence of submission Quarterly recycled water quality monitoring report for NSW Health 2013-2014 Quarter Four Labware Notification - Recycled Water 2013 08 05 Labware Notification - Recycled Water 2013 08 05 A&R follow-up Labware Notification - Recycled Water 2014 02 06RW Ref Doc12 Labware Notification - Recycled Water 2013 08 05 Labware Notification - Recycled Water 2013 08 05 A&R follow-up Labware Notification - Recycled Water 2014 02 06 August exception report - Recycled Water for Corporate Performance Report Dump of RW Quality Incidents in SWIRL 2013_14 SWIRL Incident # INC-2467 and INC-4004 RW Ref Doc14 West Camden Irrigation Scheme - Monthly Performance Report 2014-15 RW Ref Doc20 Elizabeth Macathur Supply Scheme 4th Quarterly Client Report RW Ref Doc3 Recycled Water Monitoring 2013-14. 		
Summary of reasons for grade		
Sydney Water maintains systems and processes to ensure that the reporting obligations set out in the Reporting Manual are met. Reporting is appropriate and in accordance with the AGWR.		
Discussion and notes		
<p>Sydney Water carried out monitoring of recycled water quality as documented in the Annual Recycled Water Quality Monitoring Plan 2013/14. All data is collated into Quarterly reports, including exceptions and relevant discussion of such, which is provided to various Sydney Water staff, and to NSW Health. Any issues of concern are discussed with NSW Health at the Joint Operational Group meetings. Any result obtained outside the operating targets set out in the Monitoring Plan is advised to the relevant operations staff for information and action as required. Where relevant the operation team will enter this result in the Sydney Water incident management system along with any relevant information as to plant operating and CCP indicators at the time the sample was taken, along with any actions taken. The incident system automatically notifies NSW Health who has direct access to the system.</p>		

Sydney Water recycle water plants are components of existing waste water treatment plants and operations of such, including emergency response procedures, have been incorporated into, and are managed as an integral part of the total plant operations. Each plant has Standard Incident Procedures (SIPs) relevant to their own plant (eg. power failure, flooding etc). These SIPs form part of the quality management system in place at the plant.

Various recycled water quality exceptions have occurred and have been reported. Where appropriate NSW Health has been informed via the SW incident reporting system of these exceptions. Plant Standard Incident Procedures (SIPs) are treated as controlled documents.

Recycled water incidents were notified using SWIRL and recorded. Some involved low free chlorine in the Rouse Hill area and were resolved. In the Rouse Hill district - a cross-connection within a customer's property was identified by a Fair Trading Inspector on Friday 06 December 2013 in Kellyville Ridge. The cross-connection was located on the customer's private water service between the water meter and the customers' house. It was established that both the potable and recycled water supply lines were damaged recently during work performed by a landscaper on the customers' property. Repairs were undertaken by a plumber to restore each service and in doing so it appears that the potable water supply service after the water meter was inadvertently connected to the recycled water service line and vice versa. The property is new and was inspected by Fair Trading in July 2013 as part of its final inspection with no defects identified. Fair Trading advised that the customers' property has been unoccupied since the final inspection with the occasional visit by the owner and various tradesmen.

No emergencies occurred in the audit period involving recycled water and thus there are no formal debriefs available in the period. Incidents have occurred at these plants during the period but due to the monitoring and interlocks on provision of recycled water no emergencies were declared involving recycled water supply.

No changes were made to recycled water from that covered in the specific RWQMPs, apart from the continued use of drinking water in the Hoxton Park scheme reticulated pipe work. NSW Health has been kept informed of the issues involved and had no concerns with this arrangement.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

Sydney Water would benefit from improved document control associated with recycled water procedures and reporting. Some version control and signature sign-off was not up to date.

Sydney Water and its recycled water customers would benefit from additional open reporting that is two-way. That is, improved frequency and form of reporting via Customer Agreements and associated with Annual Declarations. This can include updates on roles, contact details, responsibilities; customer controls; water quality data trend analysis and other changes to risk.

Appendix B – Detailed audit findings – Infrastructure performance

Detailed Audit Findings		Managing Assets
Sub-Clause	Requirement	Compliance Grade
3.1.1 (a)	Sydney Water must ensure that its assets are managed consistently with the asset management framework described in clause 3.1.2	Full
Risk		Target for full compliance
Assets are poorly managed leading to higher costs and failure to meet required service levels		An effective Asset Management Framework (AMF) is in place and implemented across all asset classes
Evidence sighted		
<p>This clause was audited during site inspections of treatment plants and new water mains in the South West Growth Centre on the 10th of September 2014.</p> <p>Evidence sighted in addition to that listed in Clause 3.1.2 includes:</p> <p><i>Water Mains – Oran Park Transfer Line</i></p> <ul style="list-style-type: none"> • Risk Assessment Management Plan, Networks Alliance South West Growth Centre, 9th Sept 2011 • Contractors Works To Proceed, Richardson Road, 12th September 2011 • Compaction Testing Report Richardson Road to Grahams Hill Road, 20th Sept – 8th Nov 2011 • Networks Alliance Environment Check List Oran Park Dr 7th June 2012 • Hydraulic Pressure Test Report 750 mm water main Grahams Hill Rd Narellan, 1st September 2012 • Restoration Works Sign Off, Richardson Rd to Grahams Hill Rd Narellan, 28th November 2012 • NATA Inspection and Test Plan, Water Mains Installation Richardson Road, 9th March 2013 • Practical Completion Checklist, Richardson Road Narellan, 15th April 2013 <p><i>West Camden Water Recycling Plant</i></p> <ul style="list-style-type: none"> • Treatment Maintenance Report for June - 2014 • Data Integrity Project, Post Implementation Review, 29th July 2013 <p><i>Warragamba Water Filtration Plant</i></p> <ul style="list-style-type: none"> • Works Schedule SMART SCADA\Electrical\Accommodation Upgrade Project Warragamba WFP, 31st August 2104 • Warragamba WFP013 SCADA and Electrical Assets Renewal Rev 6 2009/13976F, 11th November 2010 • Warragamba WFP013 SCADA and Electrical Assets Renewal Variation No.1 Rev 1 2009/13976F, 3rd July 2012 • Completed CapBid Form/Spreadsheet Warragamba SCADA upgrade • Sydney Water – PSMUP Collaborative Services Agreement Annexure 15 WARRAGAMBA WFP SCADA UPGRADE 		
Summary of reasons for grade		
<p>Sydney Water has a robust Asset Management Framework that complies with all requirements identified in Clause 3.1.2 of the 2010-2015 Operating Licence. Sydney Water demonstrated that the AMF has been, and continues to be, implanted across the treatment and water mains asset classes visited on the 10th of September 2014.</p>		
Discussion and notes		
<p>Audit findings were based on documents provided by Sydney Water the Asset Management Framework as listed under Operating Licence Clause 3.1.2.</p>		

Annual audits of Sydney Water's performance on the asset management elements of the Operating Licence (Clause 3.1.1 & 3.1.2) have occurred each year in the current licence period.

The rationale for the current audit was to test key elements of Clause 3.1.2 (b) by site inspections of the following asset classes; Water Mains and Treatment Plants. Emphasis was placed on demonstration of implementation of procedures covering Asset inventory; Maintenance of adequate records and robust and reliable data and Proactive and reactive maintenance.

Asset Class Treatment Plant. West Camden Water Recycling Plant

The auditor was provided with a demonstration of the implementation of the AMF for managing existing assets during routine Preventative Maintenance Operation Level Inspection of assets on the primary treatment (ST0028-10) and the Tertiary Filters (ST0028-30). Features of the assets were located in the Maximo data base. A treatment maintenance report current through to June 2014 was generated to identify history of the asset based on number of failures over the current licence period (2010-present), number of failures in real terms and as a percentage per maintainable unit for the current licence period, comparison to most frequent failures over all locations of the plant with a commentary the features of these assets. Effective management of these assets relies heavily on the accuracy of the data stored in Maximo.

The audit found that in the last audit period Sydney Water recently completed (July 2013) a Data Integrity Project (DIP) at a cost of \$12M to update information on the configuration (age, type, location) of treatment assets as part of a continual improvement process. In addition to improving the accuracy of the "Source of Truth" for Sydney Water's asset management system, there has been notable improvement in the tracking of data on a given asset. A "Source of Truth" refers to the primary repository of information that is accessed by multiple enterprise platforms. The auditor found that that Sydney Water have documented procedures in place to regulate and review any changes to this primary repository. Previously, Sydney Water tracked information based on the type of assets (for example a Penstock). This has been extended to include, the asset location (eg Primary Treatment) and the asset class (wastewater treatment) to allow for more granular planning on individual items across an asset portfolio. A review of a typical work order generated in Maximo found that work flow procedures includes routine reviews with the plant manager, plant maintenance representative, the area manager and the Mechanical/Electrical sub-contractors to improve the level of coordination and reduce amount of overlap in resource allocation. The overall result has been an improvement in asset reliability using the existing systems and resources.

Asset Class Treatment Plant. Warragamba Water Filtration Plant

The auditor was provided with a demonstration of the implementation of the AMF for managing new assets associated with the upgrade of mechanical and electrical assets and the Supervisory Control and Data Acquisition system via the SMART JV at the Warragamba Water Filtration Plant. The auditor was provided a description how improvements in a particular asset class (eg pump) in a portfolio area (Treatment) was coordinated under Collaborative Service Project Renewals by the SMART Joint Venture (Thomas Control, Schnieder & Sydney Water). The site visit provided an example of how business case was developed based on input from the operations team to address a performance issue (eg lack of redundancy/maintainability and implementation of new standards for electrical assets) using the asset renewal elements of the AMF. The demonstration covered the procedures for a range of activities including; operational review of the business case; review of technical specifications used to procure the new assets; procedures for interfacing JV through Factory Acceptance Testing, Site Acceptance Testing and Operational Handover. A review of the works program indicated that the upgrade is on track and includes scheduled tasks for review of installed assets via Project Implementation Reviews.

Asset Class Mains Distribution. Installation, testing and operation of new 750 mm water main on Richardson Road Oran Park.

The auditor was provided with a demonstration of the implementation of the AMF for managing new the life cycle of a new 750 mm water main in Oran Park. The site visit afforded the opportunity to review documentation on the design and construction of the new asset, coupled with a field demonstration of Hydra software, which provides information on location and status of assets, which links back to the Maximo system. The documentation provided details on the implementation AMF for the management of contracts and contractors, particularly covering certification of design and construction standards, risk management, environmental compliance, site rehabilitation and final acceptance.

The audit concluded that Sydney Water are implementing the Asset Management Framework and have taken opportunities to improve the quality of the data stored in Maximo and other measures to improve the reliability of data and are implementing preventative maintenance procedures to improve the reliability of assets under management

Recommendation

There are no recommendations in relation to this sub-clause

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings		Asset Management Framework
Sub-Clause	Requirement	Compliance Grade
3.1.2 (a)	Robust and transparent methodologies for determining and prioritising licensing and other regulatory requirements and current and future service levels as well as identifying the infrastructure needed to achieve those service levels and requirements;	Full
3.1.2 (b)	Robust, transparent and consistent processes, practices and programs to ensure sustainable delivery of service levels and regulatory requirements, based on sound risk management	
3.1.2 (c)	Robust and transparent decision making processes that balance acceptable risk with cost and service provision to achieve prudent, efficient and effective operating and capital investment	
3.1.2 (d)	An approach that achieves the lowest cost of service delivery through the effective life cycle management of the asset base	
3.1.2 (e)	Robust and transparent processes of review and continuous improvement in asset management	
Risk		Target for full compliance
Assets are poorly managed leading to higher costs and failure to meet required service levels.		An effective asset management system is in place and implemented across all asset classes
Evidence sighted		
<p>Framework:</p> <p>Strategic Framework for Asset Management (AMQ0234) 7th Sept 2011</p> <ul style="list-style-type: none"> Outline of Asset Management Framework (Presentation) 23rd September 2013 Corporate Risk and Opportunity Register (QMAF0018), Reviewed 6th December 2013 Compliance Accountability Register 2014 current at 7th February 2014 <p>Asset inventory;</p> <ul style="list-style-type: none"> Asset Register - Fixed Assets and Capital Reporting, October 2010 Asset Configuration Management policy (AMQ0033.06), October 2009 Asset Creation Procedure: Create Facility (MEPR0038) 18th July 2012 Asset Numbering Policy (ACP0001), August 2009 Asset Numbering Standard Operating Procedure (ACP0055), 29th May 2009 Procedure for Asset Specification Information Collection 30th April 2013 <p>Asset planning incorporating both business and technical risk assessments;</p> <ul style="list-style-type: none"> Asset Management Plan WWTP and WRP (AMQ0113), December 2010 Water Main Asset Management Plan (AMQ0049), June 2011 Water Filtration Plant Asset Management Plan (AMQ0123), July 2011 Asset Renewals, Reliability and Business Efficiency Programs (AMQ0116) Condition Assessment of Critical Water Mains (BMIS0184) 5th October 2011 		

Maintenance of adequate records and robust and reliable data;

- Network Performance Report, June 2014
- State of the Assets Report, 2013
- BMIS Front page: Strategic Framework for Asset Management (AMQ0234)

Asset replacement, rehabilitation, augmentation, creation/acquisition and/or substitution:

- Asset Renewals, Reliability and Business Efficiency Programs (AMQ0116)

Management of service provision, including contracts;

- Strategic Framework for Asset Management (AMQ0234) 7th September 2011
- Corporate Risk and Opportunity Register (QMAF0018), Reviewed 6th December 2013

Monitoring and condition assessment;

- Condition Assessment of Critical Water Mains (BMIS0184) 5th October 2011

Proactive and reactive maintenance;

- Maintenance Policy (AMQ0002), accessed 14th May 2014
- Failure Mode Effects and Criticality Analysis (FMECA) Procedure (AMQ0006) 23rd February 2011

Contingency planning covering both emergency management and business continuity:

- CapBid guidelines and CAPBID Template (UNDATED)

Asset rationalisation and disposal;

- Disposal Guidelines (iConnect)

Summary of reasons for grade

Sydney Water has a robust Asset Management Framework that complies with all requirements identified in Clause 3.1.2 of the 2010-2015 Operating Licence

Discussions and notes

Audit findings were based on documents provided by Sydney Water (Evidence sighted) and responses by Sydney Water to a series of questions on the elements of the Asset Management Framework. A presentation titled "Outline of Asset Management Framework" was made on the 8th September 2014. This presentation outlined the current approach to asset management, in particular the move to expand the criteria used to record and track information on assets from asset class to asset portfolio area. This is a significant improvement that will allow for greater comparison on individual asset performance across a range of applications. Sydney Water's service delivery system, including the asset management system, relies heavily on the Maximo data base and software. A significant activity completed in the current audit period was the Data Integrity Project. Sydney Water treatment plant asset maintenance plans rely heavily on the integrity of data held in Maximo. Other areas of Sydney Water also rely on Maximo being the 'single source of truth' for asset data and the alignment of work practices including responding to customer complaints associated with mains breaks and leaks and disruption to continuity of water service and delivery at minimum pressure requirements. Maximo is used for aligning response and work practices to individual assets and asset locations. Sydney Water has demonstrated that the accuracy of the data held in Maximo is reviewed and updated to improve the reliability of the assets and the delivery of service to customers. In the last audit period Sydney Water identified concerns on the integrity of mechanical electrical data. The review raised a question on the existing data and highlighted the lack of consistent application of an Asset Hierarchy as described in the AFM. An outcome of the Data Integrity Project has been an improvement in the quality of the data held in Maximo and an ability to track and analyses with greater precision a range of business information including condition of assets and other information used in calculation of total life-cycle cost that are used in renewal and replacement strategies

3.1.2 (a) Robust and transparent methodologies for determining and prioritising licensing and other regulatory requirements and current and future service levels as well as identifying the infrastructure needed to achieve those service levels and requirements.

The audit made the following observations with respect to clause 3.1.2 (a) of the operating license.

Asset Management Framework

The asset management clause of the Sydney Water operating licence has been audited each year. These audits have found that Sydney Water has developed and implemented a robust Asset Management Framework as described in clause (a), consistent with the requirements of an operation that relies on more than 8 million assets across 3 asset portfolios. The 2013-2014 found that asset classes continue to be managed in accordance with Sydney Water's Asset Management Framework. The AMF has not been changed since the last audit period (2012-2013). The framework has been benchmarked through the Water Services Association of Australia (WSAA) which confirmed robust processes and capability and concluded 'Sydney Water is generally in the industry leader category of asset management development'. Sydney Water have scheduled a review of the AMF decision frameworks for March 2015.

3.1.2 (b) Robust, transparent and consistent processes, practices and programs to ensure sustainable delivery of service levels and regulatory requirements, based on sound risk management.

The audit made the following observations on the elements listed under clause 3.1.2 (b) of the operating license.

1. Asset Inventory

Sydney Water continues to rely on the Maximo Asset and Works Management tool. Maximo is the "source of truth" for all assets and is maintained by the Asset Data Integrity Group. An Asset Configuration Management policy (AMQ0033.06) and Asset Numbering Policy (ACP0001) establishes the information required for new and existing assets and how the assets are catalogued in Maximo. Information is catalogued using a three tier hierarchy from Facility Level (Level 1) through to a Maintainable Unit (Level 3). Work Orders (WO) can be raised against specific assets at any level, with actuals and problem, case, remedy fields being populated by maintenance staff.

2. Asset Planning Incorporating both business and technical risk assessments

Sydney Water continues to use a Compliance Accountability Register (updated 7th February 2014) which identifies the area of the organisation responsible for ensuring compliance with licensing, regulatory and level of service requirements. The register identifies clear accountabilities, contacts and evaluation mechanisms at a corporate level for licensing and regulatory matters. Sydney Water continues to prioritise asset management activities based on licensing, regulatory and level of service requirements across all the asset portfolio areas (Treatment, Distribution and Stormwater) in accordance with the procedures outlined in the AMF. These procedures are grounded on a strong risk management philosophy which flow through to documents and procedures sub-ordinate to the AMF. Rigorous risk management criteria covering potential impacts on environment, customer, safety, public health and regulatory/compliance obligations are set out in the Corporate Risk and Opportunity Register (QMAF0018). These criteria are used in the preparation of the business case for capital improvements and are assessed against the risk of not proceeding, or deferring the project against the same criteria. Asset Management Plans for Wastewater Treatment and Water Reclamation Plants (AMQ0113) considers current regulatory requirements (Section 2.1) and possible future regulatory landscape (Section 5.7) in the strategies to manage assets to meet current service requirements and the need to upgrade facilities to meet future contingencies.

3. Maintenance of adequate records and robust and reliable data

In the 2013-2014 audit period, Sydney Water concluded an 18 month review of some asset data bases held in Maximo. This Data Integrity Project reviewed and improved the accuracy of information on 9 treatment plants contained in Maximo. An important objective of the DIP was to validate the configuration and type of assets in level 3. Evidence of modifications and improvements in the data base was observed on the primary treatment and tertiary filters during a site visit to the West Camden Water Recycling Plant on the 10th of September 2014.

4. Asset replacement, rehabilitation, augmentation, creation/acquisition and/or substitution

Sydney Water continues to manage the creation/acquisition of new assets by a number of processes and procedures set out in the AMF. These processes and procedures vary depending of the value of the asset and tailored to accommodate different levels of work including replacement, rehabilitation, augmentation, creation/acquisition and/or substitution. Sydney Water decision framework to quantify and prioritise the need for future work is described in the Asset Renewals, Reliability and Business

Efficiency Programs (AMQ0116). AMQ0116 sets out a decision framework to quantify and prioritise the need for future work on an asset. The delegation manual sets out the limits of monetary approval available to managers. When individual works exceed \$5 million, a separate business case is required. In this case, requesting staff must first prove a business need for that work. Most approvals occur through the submission of Opex or Capex Business Cases. The approvals process will depend on the value of the work, as defined in the delegations manual.

5. Management of service provisions

Sydney Water presented information on the management of contracts and project delivery procedure in the context of the current mechanical and electrical upgrades at the Warragamba Water Filtration plant. The audit concluded that Sydney Water continues to manage delivery of projects and provision of services, including contracts in line with established policies and procedures as outlined in a range of documents including those described in item 4 (above) and the Strategic Framework for Asset Management (AMQ0234)

6. Monitoring and Condition Assessment

Sydney Water continues to use a structured risk management framework to assess and quantify the relative importance of identified gaps and risks using a 'likelihood-severity' matrix approach in relation to the possible failure or underperformance of assets. Risks are prioritised to identify those that are unacceptable and require risk mitigation action including maintenance and renewal. For example the management strategy for critical water mains considers the risk level of each asset to both Sydney water and the community. A risk matrix is developed which provides a profile of the different levels of risk and helps to identify mains that require a higher level of management action such as proactive condition assessment

7. Proactive and reactive maintenance

All maintenance activities and functions continued to be formulated in accordance with the Maintenance Policy (AMQ0002). Preventative maintenance (PM) functions scheduled through Maximo and overseen by asset program managers in both networks and treatment. Reactive maintenance functions are raised as WO's in Maximo either by maintenance or operations staff, as a result of faults determined in PM work, or as a result of underperformance or failure. Data collected during PM and RM activities feeds into an ongoing process of Failure Mode Effects and Criticality Analysis (FMECA) FMECA underpins design processes to achieve lowest life cycle cost for the asset by ensuring that that failure modes are identified, an acceptable risk profile is defined and an appropriate maintenance plan is established to achieve the design objectives. Consequently, Sydney Water continues to require maintenance staff to populate and update the WO against specific codes for the nature of the failure, cause and remedy. This reporting occurs in line with AMQ0006 - FMECA Procedure and can be analysed through our Business Intelligence software.

8. Operations

Sydney Water presented information on the approach to operations of treatment plants and distribution systems in during the site visits to the West Camden Recycling Plant, the Warragamba Filtration Plant and the Oran Park Transfer Line. Based on observations and discussions with the operations staff during these visits it was clear that use of the key asset management enterprise systems (Maximo, Hydra, IICATS etc) are well integrated into operation procedures. Observations at the two treatment plants indicated that the organisational arrangements within operations and maintenance areas are aligned with Sydney Waters framework for Asset Management to enable operations to deliver services and comply with regulatory requirements.

9. Training and Resourcing

Sydney Water Observations made during the visits to the West Camden Recycling Plant and the Warragamba Filtration Plant indicated that Sydney Water operational staff have received training and are competent with the use of management enterprise systems (Maximo, Hydra, IICATS etc). Moreover, there is a clear understanding of the asset management philosophy that underpins the development and use of these enterprise systems and the objectives of the asset management framework on ensuring the optimum delivery of service. Observations in the field at the Oran Park Transfer Line and reservoir indicated that field staff are trained and provided with sufficient resources such as the Field Resource Management System (FRM). The FRM is a workforce management system that enables the electronic transfer of information in Maximo and other asset management systems to and from field staff using wireless technology and mobile computing devices. Field staff use FRM to receive, process and complete work orders in real time.

10. Contingency planning (Emergencies and business continuity)

Sydney Water continues to use a structured risk management for contingency planning for emergency events and for the purposes of ongoing provision of services. Any assets that may either

case based on the risks identified, are prioritised to identify areas where the unacceptable and require risk mitigation action including maintenance and renewal.

11. Asset rationalisation and disposal

Asset rationalisation and disposal procedures are described in section 5.2 of the Asset Register: Fixed Asset and Capital Reporting. The register comprehensively covers the procedures and guidelines associated with the maintenance of the asset register. The monetary value that can be signed off by individual managers is detailed in the Delegations Manual. The Sydney Water intranet site (iConnect), also maintains help pages to aid staff in disposing of unwanted assets. An extract of this is provided. In the event that an asset is mothballed, rather than disposed, staff can follow the guidelines as set out in AMQ0117, to ensure that assets are appropriately preserved.

3.1.2 (c) *Robust and transparent decision making processes that balance acceptable risk with cost and service provision to achieve prudent, efficient and effective operating and capital investment.*

Overall, the asset management systems developed by Sydney Water provide robust and transparent decision making processes that balance acceptable risk with cost and service provision to achieve prudent, efficient and effective operating and capital investment (complies with Clause c).

3.1.2 (d) *An approach that achieves the lowest cost of service delivery through the effective life cycle management of the asset base.*

The documents provide describe an approach that achieves the lowest cost of service delivery through the effective life cycle management of the asset base (complies with Clause d).

3.1.2 (e) *Robust and transparent processes of review and continuous improvement in asset management.*

Sydney Water have a robust and transparent processes of review and continuous improvement in asset management (complies with Clause e).

General comment on Document control

During the interview it was assessed that a number of documents associated with the AMF were out of date with respect to proposed reviews. Other printed versions of documents excluded current information on planned works, and contained outdated budgets. Documents were noted as being uncontrolled versions and some were incomplete at the time of issue to the auditor. Whilst these document issues do not substantiate a change in grade, it is noted that these issues compliment other document control issues noted within the whole audit and are therefore worthy of attention when Sydney Water conducts the review of the AMF framework scheduled in the final year of the current licence.

Audit Finding

The audit concluded that Sydney Water continues to maintain and implement an effective asset management system across all asset classes and is implementing opportunities to improve the reliability of the assets under its management.

Recommendation

There are no recommendations in relation to this sub-clause

Opportunities for improvement

Sydney Water are encouraged to update document control records on those asset management and reporting documents where version control and sign-off was not up to date. The review of the AMF plans scheduled for 2015-2016 provide an opportunity for continued demonstration of a robust and transparent processes of review in alignment with Clause 3.1.2 (e).

Detailed Audit Findings		Water Pressure Standard
Sub-Clause	Requirement	Compliance Grade
3.3.1a	Sydney Water must ensure that no more than 6,000 Properties experience a Water Pressure Failure in a financial year in its Drinking Water supply system.	Full
Risk		Target for full compliance
Loss of water pressure can disadvantages individual domestic and commercial customers by potentially impacting the operation of appliances, machinery and fixtures that require a minimum water pressure to function correctly.		Full compliance is contingent upon demonstration of that no more than 6000 properties experienced a drop in water pressure below 15 m measured at the point of connection of the property to the water main in the 2013-2014 audit period.
Evidence sighted		
<ul style="list-style-type: none"> SOP Investigating, Measuring and Reporting Water Pressure REV 9 WPIMS5293, 1st April 2013 Folio of progress: Water Pressure Standard, 19th August 2014 Summary of Results BI System 3.3.1 Water Pressure Analysis 2011-2012 Summary of Results BI System 3.3.1 Water Pressure Analysis 2012-2013 Summary of Results BI System 3.3.1 Water Pressure Analysis 2013-2013 Sydney Water Compliance System Performance Standards Report for IPART 2013-14. 		
Summary of reasons for grade		
661 properties were affected by water pressure incidents resulting in water pressure at the point of connection of the property to the main falling below 15 m in the 12 months to the 30 th of June 2014.		
Discussion and notes		
<p>Sydney Water has consistently complied with the Pressure Standard in each 12 month period since the 2010-2011 audit. In 2013-14, there were 19 events that caused 661 properties to experience water pressure less than 15 metres head. Of these, there were 60 properties affected due to system capacity issues and 601 properties affected from two abnormal operations events.</p> <p>In the three years since the 2010-2011 audit, the number properties affected by a water pressure incident, where water pressure falls below 15 meters of head measured the connection of the property to the main, was 572 (2011-2012), 1280 (2012-2013) and 661 (2013-2014).</p>		
Recommendation		
There are no recommendations in relation to this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings		Unplanned Water Interruption
Sub-Clause	Requirement	Compliance Grade
3.3.1b	<p>1. A Property is taken to have experienced a Water Pressure Failure at each of the following times:</p> <ol style="list-style-type: none"> When a person notifies Sydney Water that the Property has experienced a Water Pressure Failure and that Water Pressure Failure is confirmed by Sydney Water When Sydney Water's systems identify that the Property has experienced a Water Pressure Failure. <p>2. A Property will not be taken to have experienced a Water Pressure Failure only because of a short term operational problem (such as a main break) which is remedied within 4 days of its occurrence or from abnormal demand (such as demand during fire fighting).</p>	Full
Risk		Target for full compliance
Loss of water pressure can disadvantage individual domestic and commercial customers by potentially impacting the operation of appliances, machinery and fixtures that require a minimum water pressure to function correctly.		Full compliance is contingent upon demonstration that the systems and procedures, including management of information received from customers, supports the delivery of water with residual pressure of at least 15 metres head under peak demand conditions.
Evidence sighted		
<ul style="list-style-type: none"> SOP Investigating, Measuring and Reporting Water Pressure REV 9 WPIMS5293, 1st April 2013 Folio of progress: Water Pressure Standard, 19th August 2014 Summary of Results BI System 3.3.1 Water Pressure Analysis 2011-2012 Summary of Results BI System 3.3.1 Water Pressure Analysis 2012-2013 Summary of Results BI System 3.3.1 Water Pressure Analysis 2013-2013 Sydney Water Compliance System Performance Standards Report for IPART 2013-14. 		
Summary of reasons for grade		
Systems and procedures are well documented and staff have thorough understanding of the procedures and use of resources to monitor pressure and locate properties affected by a drop in water pressure below 15 m.		
Discussion and notes		
<p>Audit findings were based on documents and data provided by Sydney and interviews with the Network Product and Business Program Manager (Service Delivery), Strategist (Liveable City Solutions) and Reporting Team Leader (Service Delivery) on the 8th September 2014. The interview included a demonstration of the Hydra software to identify zones (polygons) where properties may be affected by pressure incidents and the IICATS system to monitor pressure in the distribution system. A field visit on the 10th of September 2014 provided the opportunity for further discussions with a Program Delivery Officer (Level 2) at the Oran Park Distribution System and Field Inspector at the Narellan South Reservoir. Evidence was provided that new distribution systems delivered in Oran Park developments are built to code and that the field staff are familiar with the use of appropriate monitoring and asset programs including Hydra.</p>		

Sydney Water monitors for incidents that result in a loss of pressure in the distribution system using either the Integrated Instrumentation, Control and Telemetry System (IICATS) or by customers contacting a call centre. This data is managed through the Water Product Integrated Management System (WPIMS). A set of Standard Operating Procedure (WPIMS 5293 Investigating, Measuring and Reporting of Water Pressure) enables staff to process a suite of data on the distribution system including, topography, operational data, field reports, customer complaints and numerical simulations from hydraulic models to identify a zone in where pressure has fallen below the minimum licence standard of 15 m of head.

During the 2013-2014 audit period, Sydney Water identified 19 incidents that resulted in a drop in water pressure below the licence standard at an estimated 661 properties. Three of these incidents were classified as major events that impacted 74.25% of the properties affected in 2013-2014. The three events included; a main break during a trial shutdown of the main supply to the city from Potts Hill which affected 251 properties on the Potts Hill system; network supply rezoning during upgrade of a reservoir that affected 191 properties on the Prospect North System; capacity constraints during a hot weather event that affected 49 properties on the Orchard Hills System.

Procedures outlined in SOP- WPIMS details how Sydney Water used information from the 19 incidents to maintain and upgrade the distribution system and improve the accuracy of the distribution models. In the case of the Potts Hill and Prospect North events the data was used in the scenario modelling simulations to test the validity of the existing distribution models. In the 2013-2014 audit period, Sydney Water completed a \$31M upgrade and calibration program for the critical water hydraulic models to improve the accuracy of scenario modelling of system capability and predicted response during operational events.

In the case of the Orchard Hills event it was determined that incident was caused by capacity issues rather than an operational issue. As a result the area will be the subject of planning studies to confirm the capacity of the water mains feeding the failed area. Other information on Water pressure failure events is used to inform the preventative maintenance programs. Specific examples from the 2013-2014 period include; valve audits to confirm the operational status of the valves in the mains feeding the area; confirmation of operational status of pumps and automatic control valves in the water system feeding the failed area; and condition assessment of the water mains in the affected area.

Recommendation

There are no recommendations in relation to this sub-clause.

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings		Water Continuity Standard
Sub-Clause	Requirement	Compliance Grade
3.3.2 (a)	Sydney Water must ensure that: (1) no more than 40,000 Properties experience an Unplanned Water Interruption exceeding 5 hours in a financial year, and (2) no more than 14,000 Properties experience 3 or more Unplanned Water Interruptions of more than 1 hour duration in a financial year	Full
Risk		Target for full compliance
<i>Unplanned supply interruptions disadvantages individual domestic and commercial customers and the general public by creating potential health risks to customers dependant on a secure water supply; commercial risks via damage to water dependant machinery and equipment; and public risk by limiting access of fire services to water at appropriate pressure and flow</i>		<i>Full compliance is contingent upon demonstration of that no more than 40,000 properties experienced an unplanned interruption of no more than 5 hours and no more than 14,000 properties experienced three or more unplanned interruptions of more than 1 hour in the 2013-2014 audit period.</i>
Evidence sighted		
<ul style="list-style-type: none"> Decision Framework, Critical Water Main Renewal, BMIS Document Number: AMQ0035 Issue: 2, June 2011 Folio of progress: Water Continuity Standard, 7th May 2014 Summary of Results BI System 3.3.2 Unplanned Properties All Durations 2011-2012 Summary of Results BI System 3.3.2 Unplanned Properties All Durations 2012-2013 Summary of Results BI System 3.3.2 Unplanned Properties All Durations 2013-2014 		
Summary of reasons for grade		
30,687 properties were affected by an unplanned water supply interruption of more than 5 hours and 4535 properties experienced 3 or more unplanned interruptions of more than 1 hour.		
Discussion and notes		
<p>In the 2013-14 audit period there were 590 unplanned shutdown events exceeding 5 hours that affected 30,687 properties. In the same period 4535 properties were affected by 3 or more unplanned interruptions lasting more than 1 hour.</p> <p>Sydney Water has consistently complied with requirements of OL 3.3.2 (a) in each 12 month period since the 2010-2011 audit. During this time, the number properties affected by an unplanned water supply interruption of more than 5 hours was 28,386 (2011-2012), 30,806 (2012-2013) and 30,687 (2013-2014). Over the same period the number of properties experiencing 3 or more unplanned interruptions of more than 1 hour was 4171 (2011-2012) and 4918 (2012-2013).</p> <p>Sydney Water was found to comply with the licence conditions for the number of properties experiencing service interruptions in 2013-14; however, there was some error noted in the reporting of actual numbers of properties affected. This did not alter Sydney water meeting licence obligations for supply interruptions.</p> <p>The error included not counting interruptions caused by third parties (i.e. on the property) or power failures. The Licence interpretation is as follows</p> <p>“Unplanned Water Interruption is an event which:</p> <p>(a) commences when the supply of Drinking Water at the first cold water tap of a Property is interrupted without the Customer or Consumer having received prior notice of that interruption from Sydney Water (and includes an interruption resulting from damage caused by a person, other than Sydney Water, or from a power failure).”</p> <p>The interrogation of database information and reporting on interruptions was also audited for NWI indicators C15 and C17 (see Appendix F). Through the evidence assessment and interview process it was established that there were inconsistencies in interruptions reported. These inconsistencies included Sydney Water indicating that on property breaks resulting in interruptions were not recorded – C15 and were recorded – C17. The time for unplanned interruptions (C15) was identified as being under reported by 5% (151 minutes instead of 158 min – as calculated by the auditor). The frequency of unplanned interruptions (C17) was assessed as including third party on-property issues with an estimate provided for these third party occurrences of 2% deviation.</p> <p>The evidence provided for checking this calculation deviated 3% from what was reported (calculated as 177 -</p>		

reported as 183), excluding third party interruptions. These errors were considered within a tolerable margin for reporting for both 3.3.2 and the NWI indicators and do not affect the grades applied to both sub-clauses.

Recommendation

There are no recommendations in relation to this sub-clause

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause

Detailed Audit Findings		Unplanned Water Interruption	
Sub-Clause	Requirement	Compliance Grade	
3.3.2 (b)	(1) In determining whether a Property experiences an Unplanned Water Interruption a best estimate is to be applied from the best available data, taking account of water pressure data where that data is available. (2) A Property is taken to have experienced a separate Unplanned Water Interruption for each period of 5 hours or more that the Unplanned Water Interruption exists.	Full	
Risk		Target for full compliance	
Unplanned supply interruptions disadvantages individual domestic and commercial customers and the general public by creating potential health risks to customers dependant on a secure water supply; commercial risks via damage to water dependant machinery and equipment; and public risk by limiting access of fire services to water at appropriate pressure and flow		Full compliance is contingent upon demonstration of accurate asset, configuration and operations information systems to support a continuous supply of water under all normal operating conditions and have a residual pressure of at least 15 metres head under peak demand conditions.	
Evidence sighted			
<ul style="list-style-type: none">Decision Framework, Critical Water Main Renewal, BMIS Document Number: AMQ0035 Issue: 2, June 2011Folio of progress: Water Continuity Standard, 7th May 2014			
Summary of reasons for grade			
Systems and procedures are well documented and staff have thorough understanding of the procedures and use of resources to monitor pressure and locate properties affected by unplanned water interruptions.			
Discussion and notes			
Audit findings were based on documents and data provided by Sydney interviews with the <i>Network Product & Business Program Manager, Business System Specialist Supervisors</i> and the Performance & Reporting Team Leader on the 8 th September 2014. Discussions and demonstrations Program Delivery Officer Level 2 at the Oran Park Distribution System and Field Inspector at the Narellan South Reservoir on the 10th September 2014.			
Sydney Water has developed and implemented systems and procedures to identify the location and duration of discontinuity events in the water supply system. Systems and procedures are well documented and staff have thorough understanding of the procedures and use of resources to monitor pressure and locate properties affected by unplanned water interruptions. Pressure and flow is monitored utilising the Integrated Instrumentation, Control and Telemetry System (IICATS). IICATS is also used to control critical components, optimise system performance and maintain system capability during planned and unplanned network shutdowns. Low pressure events trigger alarm conditions on pressure gauges located in the distribution system. Low pressure alarms IICATS can be used to generate work orders via Maximo/Hydra. Resource supervisors are notified and dispatch field crews to identify the properties affected, action the work order and record water off and water on time fields to establish the duration of the event. This information is recorded in the Field Resource Management System (FRM). FRM is a workforce management system that enables the electronic transfer of information to and from field staff using wireless technology and mobile computing devices. Field staff use FRM to receive, process and complete work orders in real time. It allows field staff to perform to access GIS maps in the field and capture asset locations and affected properties for rebate purposes. The field crews effect the repairs and close the project out in the FRM which creates a time stamp in Maximo to record the response time for reporting purposes.			

Sydney Water also use a range of operational, maintenance and asset management strategies to reduce the frequency of unplanned and planned water interruption events. These include; the use of temporary pressure gauges to monitor the pressure at the hydraulically disadvantaged locations, to enable corrective action to avert pressure failures; An Active Leak Detection (ALD) program that has inspected 138,046 km since 2006; A Critical Water Main (CWM) program which considers unplanned water interruption as part of planning studies ahead of delivering renewal work; a preventative maintenance program based on condition assessment program for the critical water mains in very high and high risk regions in accordance with the Critical Water Main Renewal Decision Framework. Critical valves are routinely inspected and condition assessed to ensure that the assets are effective during a potential unplanned interruption event.

Data on unplanned water interruption events are analysed every two weeks to identify assets that may qualify for renewal based on the occurrence of three or more failures in a two year period. The renewal process follows either the CWM or reticulation water main renewal decision frameworks. The renewal decision must demonstrate that it is cost effective to deliver using a financial analysis for reticulation mains and an economic analysis for CWMs. In the 2013-2014 audit period Sydney Water renewed 33.1 km of Reticulation Main and 7.4 km of Trunk Mains with a total capital cost of \$54.9M.

The audit concluded that Sydney Water are fully compliant with Clause 3.3.2 (b) and continue to maintain and improve the systems and procedures used to minimise the number of properties that experience unplanned interruptions of more than 5 hours.

Recommendation

There are no recommendations in relation to this sub-clause

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause

Detailed Audit Findings		Sewage Overflow Standard
Sub-Clause	Requirement	Compliance Grade
3.3.3 (a)	Sydney Water must ensure that: No more than 14,000 Properties (other than Public Properties) experience an Uncontrolled Sewage Overflow in dry weather in a financial year; and	Full
3.3.3 (b)	No more than 175 Properties (other than Public Properties) experience 3 or more Uncontrolled Sewage Overflows in dry weather in a financial year.	
Risk		Target for full compliance
Discharge of raw sewage onto customer property presents a Public health hazard and potentially result in damages and additional clean up costs and claims for damages		Full compliance is contingent upon demonstration of procedures to monitor and maintain integrity of sewer pipes, detect and diagnose the cause of blockages to limit the number of uncontrolled dry weather sewage overflows.
Evidence sighted		
<ul style="list-style-type: none">Decision Framework, Dry Weather Overflow Management, BMIS Document Number:AMQ0139 Issue: 2, 15th July 2011Folio of progress: Sewage Overflows, 22nd July 2014Summary of results compiled from Business Intelligence SystemDocuments sighted to check calculations (see figures embedded in text)		
Summary of reasons for grade		
8869 properties experienced an uncontrolled sewer overflow and 66 properties experience three or more uncontrolled sewer overflows in dry weather in the 2013-2014 audit period.		
Discussion and notes		
<p>Audit findings were based on documents and data provided by Sydney interviews with the <i>Network Product & Business Program Manager</i> and <i>Business System Specialist Supervisors</i> on the 8th September 2014.</p> <p>Sydney Water implemented a Choke Management strategy in 2006/07 to reduce the number of dry weather overflows. Incidents of uncontrolled sewer overflows in dry weather are reported to the customer call centre. Information on the location and time of the event is recorded and a job is despatched to a field response crew via the Field Resource Management System (FRM). FRM is a workforce management system that enables the electronic transfer of information to and from field staff using wireless technology and mobile computing devices. Field staff use FRM to receive, process and complete work orders in real time. It allows field staff to access GIS maps in the field and capture asset locations and affected properties. The field crews effect the repairs and close the job in the FRM which creates a time stamp in Maximo (Sydney Water's Maintenance Management Information System) to record the response time for reporting purposes. The information recorded for sewage overflows is analysed for repeat failing assets considered for maintenance intervention. Uncontrolled sewer overflows are typically linked to chokes or blockages in the wastewater system. In 2013-14, 97.8% of the overflows were caused by system blockages while the remaining 2.2% were attributable to operational or asset failures. Similar trends were observed in 2012-2013 (96.5% blockages) and 2011-2012 (96.9% blockages).</p> <p>In 2013-14, 8869 private properties were affected by uncontrolled sewage overflow in dry weather, compared to 6908 in 2012-13 and 7708 in 2011-2102. Over the same period, 66 private properties were affected by three or more uncontrolled sewage overflows in dry weather, compared with 39 in 2012-13 and 43 in 2011-2012. Sydney Water attributes the higher number of chokes in the current audit period to an increase in blockages caused by tree roots as a result of the unusual warm temperatures and dryer conditions in the past 18 months.</p> <p>In the last audit period Sydney Water increased the frequency for analysis of repeat chokes affecting properties from once every 12 months to once every three months to ensure opportunities for earlier intervention and reducing customer impact are identified and actioned. Sydney Water has also improved the asset attributes stored in their GIS system. Some length of mains between maintenance structures were shown as split. By aggregating these individual asset components (mainly on 150 and</p>		

225 mm diameter sewer pipes) into a single maintainable unit , a clearer picture of customer impact could be determined. Since 2011 field crews have carried more effective pipeline jetting equipment fitted with flexible heads that allow cleaning of connections as well as the Sydney Water main. Other improvements include changes to the 1st call response procedures that allow a single field operator to respond to the job and either perform an initial assessment or carry out corrective action to stop the overflow.

The veracity of the data and accuracy of the method used to calculate the number of properties that experienced a single uncontrolled sewage overflow or 3 or more uncontrolled sewage overflow events in dry weather was audited for a sub-set of data collected between 01/07/2013 and 30/06/2014. During this period Sydney Water received notification of 24,454 incidents based on data extracted from customer call records and Sydney Water field response (Table 1). Figures 1 to 3 follow an example of a job followed through in Maximo from call to completion to assess the quality of the information stored in the reporting application. Figure 1 shows a service request logged from a customer in Maximo. Figure 2 is the work order generated by Maximo. Figure 3 shows the results from reporting application showing the workorder, the properties affected and their location.

Problem Type (SF)	Sum:
Internal Request	271
Internal Surcharge	242
Manhole Displaced	638
Odour Enquiry	1515
Plumber Confirmed Choke	7285
Plumber Junction	79
Restoration Required	726
Seepage	178
Sewer Surcharge	12946
Sewer Surcharge Accept	132
Sewer Surcharge Decline	6
Subsidence over Sewer	436
Total	24454

Figure 1: Service request logged from customer in Maximo

Figure 2: Workorder information from Maximo

Description	Problem Type Description (SF)	Workorder Number	Task Code	Property Number / Asset Number	Calendar Period	Network	SCAMPS
Dry weather overflows affecting Private properties	Sewer Surcharge	71183151	SR2B	4606406	201310	N_PENRITH	S_MOUNT_PLEASANT
Dry weather overflows affecting Private properties	Sewer Surcharge	71183151	SR2B	4638143	201310	N_PENRITH	S_MOUNT_PLEASANT

Figure 3: Results from Reporting application showing the workorder, the properties affected and their location.

Review of the Hydra and FRM records indicate that provisions are made to collect data on address of the property and the BIS contains provisions to interrogate the data to determine if an overflow had occurred at the same property in the last 12 months. The data reviewed for this period is consistent with the information used by Sydney Water to tabulate the number of properties impacted by

uncontrolled dry weather overflows presented Folio of progress: Sewage Overflows, 22nd July 2014

The audit concluded that Sydney Water are fully compliant with Clause 3.3.3 and continue to maintain and improve the systems and procedures used to respond to and prevent uncontrolled dry weather sewer overflows.

Recommendation

There are no recommendations in relation to this sub-clause

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause

Detailed Audit Findings		Service Quality & System Performance Indicators
Sub-Clause	Requirement	Compliance Grade
3.4 (a)	Sydney Water must maintain record systems that are sufficient to enable it to measure accurately its performance against the service quality and system performance indicators.	Full
3.4 (b)	In the case of any ambiguity in the definition or application of any indicators, IPART's interpretation or assessment of the indicators will prevail	
Risk		Target for full compliance
Any deficiencies in the accuracy and reliability of the system to track and record asset performance undermines the confidence in the results presented on performance indicators and prevents effective regulation of the public utility		Demonstrate that the systems used to track and record information and data used to calculate performance indicators are accurate and reliable and present a true indication of the utilities performance in the past 12 months.
Evidence sighted		
<ul style="list-style-type: none"> • Demonstration of the Customer Service/Complaints System • Demonstration of the Maximo asset management system (Head Office and West Camden WRP10th September 2014) • The GIS HYDRA Systems system (Head office and Oran Park 10th September 2014) • The IICATS Telemetry System (Head Office) • Demonstration of the FRM Work Flow and Identifying Properties in FRM Maps (Field Demonstration, 10th September 2014) • Data Integrity Project, Post Implementation Review, 29th July 2013 • Summary of Results BI System 3.3.1 Water Pressure Analysis 2011-2012 • Summary of Results BI System 3.3.1 Water Pressure Analysis 2012-2013 • Summary of Results BI System 3.3.1 Water Pressure Analysis 2013-2013 • #NWI - 3 C16 Instruction • #NWI - 4 Civ - Compliance - NWI C16 - Average Sewerage Interruption (Minutes)¹ 		
Summary of reasons for grade		
The record systems are sufficient to enable the accurate measurement of performance against the Service Quality and System Performance Indicators		
Discussions and notes		
<p>The systems and procedures used by Sydney Water to extract and record data from systems including Maximo, Hydra, IICATS, for subsequent use in the calculation of performance indicators are robust and reliable. Sydney Water staff demonstrated how these systems are used in head office, in treatment plants and in the field during inspection of water mains and reservoirs.</p> <p>The precision and accuracy of the data used to calculate performance indicators including, properties affected by supply and pressure excursions, and response times for water mains breaks, is sufficient for the faithful calculation and reporting against these performance indicators.</p> <p>The veracity of the data and accuracy of the method used to extract information from Sydney Water's enterprise systems and calculate performance indicators was audited for a sub-set of data associated with reporting against National Water Indicator C16 average sewerage interruptions in minutes. Sydney Water reported this as 277 minutes per 1000 properties. The code by which this information is extracted from the FRM database was reviewed. Third party private plumbing issues are noted as not included in the calculation. Two pieces of evidence were reviewed for calculation errors these were:</p> <p>#NWI - 3 C16 Instruction</p>		

#NWI - 4 Civ - Compliance - NWI C16 - Average Sewerage Interruption (Minutes)¹

Distinct properties were recorded as 15168 and checked as 15180, indicating a <1% error. Minutes of interruptions per 1000 properties was checked as 275, indicating a minor error when compared to the reported figure. The filtering out of some data points was noted as the reason for the discrepancy in reported when compared with the checked calculation.

The system was assessed as presenting up to a 3% difference, due to data entry and system queuing errors and it was noted that 5% of work orders have an error and sit in a holding pattern, to be corrected by end of financial year if known.

The system was assessed as suitable to track and record information. The data used to calculate performance indicators are assessed as being accurate and reliable within a margin of error of <10%.

In addition, the audit was presented with evidence that Sydney Water has invested in projects such as the Data Integrity Project to further improve the accuracy of the sources of truth as part of on-going improvement to maximise the reliability and utility of the assets under management.

The audit found that Sydney Water employ the same interpretation of the definitions and applications of service quality and system performance indicators and as such there is no ambiguity between definitions used by IPART. Sydney Water made no indication that IPART's interpretation of these definitions would not be accepted.

Recommendation

There are no recommendations in relation to this sub-clause

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause

Detailed Audit Findings		Response Time for Water Main Breaks
Sub-Clause	Requirement	Compliance Grade
3.5a	<p>Sydney Water's response to water main breaks and leaks (in the trunk and reticulation components of Sydney Water's Drinking Water supply system between water treatment plants and a Property), as measured from the time Sydney Water receives notification of a break or leak to the time Sydney Water stops the loss of water, will be as follows:</p> <ol style="list-style-type: none"> 1. Priority 6 breaks/leaks 90% of jobs within 3 hours 2. Priority 5 breaks/leaks 90% of jobs within 6 hours 3. Priority 4 breaks/leaks 90% of jobs within 5 days. 	Full
Risk		Target for full compliance
Failure to respond expeditiously to water main breaks is contrary to water conservation initiatives and erodes customer satisfaction and institutional reputation.		Full compliance is contingent upon demonstration of procedures to track and calculate response times for priority 4,5 and 6 main breaks in the audit period.
Evidence sighted		
<p><i>Prior to Interview</i></p> <ul style="list-style-type: none"> • Folio of progress: Response time for water main breaks, 16th July 2014 • P6,P5,P4 Compliance Report: Rolling 4 week and Year to Date for period ending 10th August 2014 • Performance Indicator Sheet (PI) CIV008 Water System Reliability, Response Time For Water main breaks and leaks, 28th November 20005 • Customer Interaction: Faults management process manual, June 2014 • Priority Definition Manual PowerPoint Presentation: (No date). <p><i>Documents Produced During Interview</i></p> <ul style="list-style-type: none"> • PowerPoint Presentation: Water Leak – "Sample Scenario from this point forward". <p>Evidence sighted to verify calculations</p> <ul style="list-style-type: none"> • Sample data set for May-14 sourced from MAXIMO via Business Objects (BI) 		
Summary of reasons for grade		
<p>Sydney Water responded to 92% of the 180 Priority 6 breaks within 3 hours, 91% of the 3,277 Priority 5 breaks within 6 hours and 94% of the 5,897 Priority 4 breaks within 5 days in the 2013-2014 audit period. This meets and exceeds the Operating Licence requirements.</p>		

Discussion and notes

Audit findings were based on documents provided by Sydney Water on the procedures for categorising and responding to breaks in water mains; a presentation by a *Business System Specialist Supervisor* on the sequence of events triggered by report of a main break; interviews with the *Manager Works Programming* and the *MMW Project Manager*; and, a demonstration by a *Field Inspector* at the Narellan South Reservoir on the 10th September 2014.

Reports of breaks in water mains are received and actioned at the customer call centre. The initial priority of the job is determined by the caller's response to a scripted set of questions. Notification of a break is automatically assigned a date and time stamp that is used to track the time elapsed from the report of the break through to when water is secured by field staff dispatched. The procedures are detailed in the Fault Management Process Manual. The call centre operator obtains the address the fault and the property affected and asset is located in the Hydra software. A work order for the job is created in Maximo that creates a Job Number. A Sydney Water resource coordinator is notified of the job via the Field Resource Management (FRM) software which receives real time feed from the asset management software Maximo (Hydra creates a job record in Maximo) and sends a "dispatch application" to a field crew. All data in the field is recorded in FRM. A "leak ceased date" is recorded for jobs where a shutdown is not required, and a "water off date" is recorded where a shutdown is necessary.

Information on response times, based on the electronic date and time stamps categorised by job number in Maximo, are reported in the Business Information System. In the 2013-2014 audit period, Sydney water responded to 92% of the 180 Priority 6 breaks within 3 hours, 91% of the 3277 Priority 5 breaks within 6 hours and 94% of the 5897 Priority 4 breaks within 5 days. In the two years since this clause was last audited Sydney Water complied with the required response time in 92% (2011-2012) and 93% (2012-2013) of the Priority 6 breaks, 93% (2011-2012) and 93% (2012-2013) of the Priority 5 breaks and 92% (2011-2012) and 91% (2012-2013) of the Priority 4 breaks. The auditor noted that in the next 12 months Sydney Water plan on improving information the Standard Operating Manuals (SOM's) stored on Maximo to allow Field Crews to source additional information directly through the FRM. The veracity of the data and accuracy of the method used to calculate response time for breaks in water mains was audited for a sub-set of data collected between 01/05/2014 and 01/06/2014 for incidents identified from either reports to the customer call centre, or by Sydney Water Inspections. During this period Sydney Water received 856 notifications of line breaks (REF 1). By using the visual definitions for Priority break classifications these notifications were classed as Category 6,5,4 (REF 2). Examination of date and time stamps from the Call Centre and "Leak Ceased Dates" recorded in the FRM indicates that the mean response time for the category 6,5,4 events in the sample period complied with the operating licence.

The audit concluded that Sydney Water are fully compliant with Clause 3.5 and continue to maintain and improve the systems and procedures used to respond to Water Main Breaks.

Recommendation

There are no recommendations in relation to this sub-clause.

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings		Priority Sewage Program
Sub-Clause	Requirement	Compliance Grade
3.6a	<p>Sydney Water must continue with the planning and delivery of the Priority Sewerage Program such that wastewater services are provided to the requisite number of lots in the following areas by the dates specified below:</p> <ol style="list-style-type: none"> 1. Wilton and Douglas Park by 30 June 2014 2. West Hoxton by 30 June 2014 3. Bargo and Buxton by 30 June 2014 4. Cowan by 30 June 2014 5. Galston and Glenorie by 30 June 2015. 	Full
Risk		Target for full compliance
The environment can be negatively impacted in areas where there is a high proportion of unsewered properties.		Full compliance is contingent upon demonstration that planning, and delivery of the Priority Sewerage Program is consistent with the program completion dates listed in Licence clause 3.6(a).
Evidence sighted		
<p><i>Wilton and Douglas Park</i></p> <ul style="list-style-type: none"> • Wilton, Certificate of Availability, accepted by Sydney Water 22nd April 2014 • Wilton, Connection Report, Week Ending 22nd August 2014 • Douglas Park, Certificate of Availability, accepted by Sydney Water 22nd April 2014 • Douglas Park Centralised Storage Facility Interim Operating Plan (REV 2), 30th June 2014 • Douglas Park, Connection Report, Week Ending 22nd August 2014. <p><i>West Hoxton</i></p> <ul style="list-style-type: none"> • West Hoxton, Certificate of Availability, accepted by Sydney Water 10th December 2013 • West Hoxton, Connection Report, Week Ending 22nd August 2014. <p><i>Bargo and Buxton</i></p> <ul style="list-style-type: none"> • Bargo, Certificate of Availability, accepted by Sydney Water 30th June 2014 • Bargo, Connection Report, Week Ending 22nd August 2014 • Buxton, Certificate of Availability, accepted by Sydney Water 30th June 2014 • Buxton, Connection Report, Week Ending 22nd August 2014. <p><i>Cowan</i></p> <ul style="list-style-type: none"> • Cowan, Certificate of Availability, accepted by Sydney Water 3rd December 2013 • Cowan, Connection Report, Week Ending 22nd August 2014. <p><i>Galston and Glenorie</i></p> <ul style="list-style-type: none"> • GANTT Chart Networks and Facilities Renewal Program, NG5026 PSP Stage 3 Galston and Glenorie, 1st September 2014 • Request For Tender 510024969: Works Package Galston Glenorie Sewage, Reticulation Mains and Transfer Mains, 22nd July 2014 • Request For Tender 510024983: Works Package Galston and Glenorie Wastewater Servicing Property Works Package 1, 1st July 2014 • Request For Tender: Works Package RFT– PSP Galston and Glenorie Wastewater, Servicing Property Works Package 2, 31st July 2014. <p><i>Program Documents</i></p> <ul style="list-style-type: none"> • Priority Sewerage Program Annual Report Folio of Progress, 13th June 2013. <p><i>Documents produced during interview</i></p> <ul style="list-style-type: none"> • Number of Properties with Pumps and Boundary Kits (Revised Lot Definition). 		

Summary of reasons for grade
<p>Sydney Water has produced evidence that wastewater services to relevant lots in Wilton, Douglas Park, West Hoxton, Buxton, Bargo and Cowan were available by 30th June 2014 and that the planning and delivery of wastewater services to Galston and Glenorie is proceeding to program for availability by the 30th of June 2015.</p>
Discussion and notes
<p>Clause 3.6 (a) of Sydney Water's Operating License requires that wastewater services are provided to the requisite number of lots in Wilton, Douglas Park, West Hoxton, Bargo, Buxton and Cowan by 30th of June 2014. A review of the certificates of availability for these areas confirmed that wastewater services were delivered in these areas and accepted by Sydney by the 30th of June 2014 as required. It was noted that in the case of Wilton, that while connections are available, a temporary transfer arrangement is in place while remaining construction and commissioning activities are being completed. Sydney Water has produced an interim operating plan (IOP) for this period until the temporary systems at Wilton are replaced with fully operational permanent systems. In addition, Douglas Park, Bargo and Buxton are also operating under interim operating plans while construction and commissioning activities are completed.</p> <p>The 2012-2013 audit recommended that for the 2013-2014 PSP annual report that "as far as is possible" Sydney Water reconcile difference between estimate number of lots listed in schedule 4 with the actual number of lots serviced to date and into the future. Sydney Water has provided a table in the annual report that provides details on the "Estimated number of lots" and "Actual number of lots serviced" as recommended. The report notes that the estimated number of lots includes all lots within the boundary for each scheme, including lots identified as non-residential and vacant, while the actual number of lots is based on occupied residential lots only. A review of the Connection Report for the week ending 22nd August 2014 found that data reported for actual number of lots serviced in Cowan (217) was consistent with data in the 2013-2014 annual report, whereas in the case of Bargo and Buxton there was a slight discrepancy between information in the connection report (1246) and the 2013-2014 annual report (1239). Additional information provided in the audit interview by the Manager of Major Projects for the PSP's that Sydney Water plan to service 1246 properties in Bargo and Buxton with pumps and boundary connection points, plus an additional 259 properties currently either non-residential or un-occupied with boundary kits (connection points only) to accommodate future growth. Similar provisions for future lots beyond the original estimate have been made for Cowan (239 vs 217), Wilton (254 vs 237) and other PSP areas. It was concluded that Sydney Water are fully compliant with requirements to deliver wastewater services in the areas identified for the 2013-2014 audit and that some flexibility should be afforded in the reporting until such time as the programme is completed at which time the actual number of lots serviced can be reconciled with original estimates.</p> <p>Clause 3.6 (a) of Sydney Water's Operating License further requires that wastewater services are to be provided in Galston and Glenorie by 30th June 2015. A review of the Networks and Facilities Renewal Program produced on 1st of September 2014 indicated that Sydney Water were scheduled to release Request For Tender (RFT) for works on sewage reticulation and transfer mains for Galston Glenorie by 25th of July 2014. Sydney Water provided copies of the RFT for this work package issued on the 22nd of July with a closing date of 14th of August 2014. Overall completion of the reticulation and transfer mains is currently scheduled for 25th of June 2015. The audit concluded that Sydney Water are proceeding to programme for delivery of wastewater services to Galston and Glenorie by 30th of June 2015 as required in the 2013-2014 operating license.</p>
Recommendation
There are no recommendations in relation to this sub-clause.
Opportunities for improvement
No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings		Priority Sewage Program
Sub-Clause	Requirement	Compliance Grade
3.6e	Should delays caused by consent authorities impair Sydney Water's ability to meet the timeframes set out in clause 3.6, Sydney Water must write to the Minister to advise of the reasons for the delay.	Full
Risk		Target for full compliance
The environment can be negatively impacted in areas where there is a high proportion of unsewered properties.		Evidence of written advice from Sydney Water to the Minister outlining reasons for delay in timeframes set out in Clause 3.6 (if required).
Evidence sighted		
<ul style="list-style-type: none"> Priority Sewerage Program Annual Report 2013-2014 Priority Sewerage Program Annual Report Folio of Progress, 13th June 2013. 		
Summary of reasons for grade		
No delays were experienced in the ability to meet the timeframes set out in Clause 3.6 for the 2013-2014 audit period.		
Discussion and notes		
No delays were experienced in the ability to meet the timeframes set out in Clause 3.6 for the 2013-2014 audit period.		
Recommendation		
There are no recommendations in relation to this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings		Priority Sewage Program
Sub-Clause	Requirement	Compliance Grade
3.6f	Sydney Water must provide an annual report on its progress in implementing the Priority Sewerage Program to IPART in accordance with the <i>Reporting manual</i> .	Full
Risk		Target for full compliance
The environment can be negatively impacted in areas where there is a high proportion of unsewered properties.		An annual report on progress in implementing the Priority Sewerage Program has been provided to IPART as required
Evidence sighted		
<ul style="list-style-type: none"> Priority Sewerage Program Annual Report 2013-2014 E-mail correspondence, IPART, 16th September 2014. 		
Summary of reasons for grade		
Sydney Water has produced an annual report on its progress implementing the Priority Sewage Program for the Independent Pricing and Regulatory Tribunal as required in Clause 3.6 (f). IPART has provided evidence that the report was received on the 1 st of September 2014.		
Discussion and notes		
The annual report was found to be consistent with the information contained in Folio of Progress for the 2013-2104 audit period and adequately describes Sydney Waters progress delivering wastewater services in the areas identified in the 2010-2015 operating licence.		
Recommendation		
There are no recommendations in relation to this sub-clause.		
Opportunities for improvement		
Sydney Water is encouraged to include a document control table in the annual report.		

Appendix C – Detailed audit findings – Customer and consumer rights

Detailed Audit Findings Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment

Sub-Clause	Requirement	Compliance Grade
4.4a	<p>(a) Sydney Water must have in place and comply with procedures relating to customer hardship, debt, water flow restriction and disconnection. These procedures must include:</p> <ol style="list-style-type: none">1. A customer hardship policy for residential Customers, that helps residential Customers in financial difficulty better manage their current and future bills2. A payment plan for residential Customers who are responsible for paying their bill and who are, in Sydney Water's opinion, experiencing financial difficulty3. Conditions for disconnection of supply or water flow restriction in accordance with the disconnection procedure set out in the Customer Contract4. Provisions for self-identification, identification by community welfare organisations and identification by Sydney Water of residential Customers experiencing financial difficulty.	Full
Risk		Target for full compliance
Failure to implement and comply with customer hardship policies and procedures could damage Sydney Water's corporate reputation and lead to a perception of an uncaring organisation.		Policies and procedures relating to customer hardship, debt, water flow restriction and disconnection are implemented and followed by staff. Processes for determining compliance with the policies and procedures in place.
Evidence sighted		
<ul style="list-style-type: none">• Payment Assistance Policy_ external• Payment Assistance Policy _internal• Payment Assistance Scheme Procedure• Payment Assistance Scheme SOP• Centrepay Procedure• Pensioner Concessions Procedure• BillAssist Case Management Procedure• BillAssist Case Coordination Procedure• BillAssist Case Review Procedure• How to Refer to BillAssist – Debt recovery protocols• BillAssist Program Entry and Exit Procedure• BillAssist Case Review and Exits SOP• BillAssist Case Outbound Call Priority Lists SOP• Sydney Water customer – risk of harm to self or others procedure• BillAssist managing customer confidential information and privacy procedure• Sydney Water staff hardship applicants – Confidential information and Privacy Procedure• Concealed water leak allowance procedure• Overdue payments and disconnection for non-payment policy _ external• Overdue payments and disconnection for non-payment policy _ internal• Overdue payments and disconnection for non-payment procedure		

- Interest on overdue charges procedure
- PlumbAssist Assessment procedure
- Managing PlumbAssist cases work instruction
- PlumbAssist payback by customer work instruction
- Attendance sheet – Mental health awareness training_June 2014
- Attendance sheet- social context of hardship training_Oct 2013
- Social context of hardship training summary_Jan2014
- Quality assurance call monitoring sample
- Sample residential bill
- Water wrap February 2014
- Website-Financial assistance page
- Activity report_3750989
- Debtors list report sample
- Broken payment arrangements report_July 2014
- Current training and outreach calendar
- Help in times of financial difficulty
- Case coordinator induction April 2013
- Our contract with you
- Water wrap procedure 2014
- Operating Licence 2010-2015; Performance Indicators Report 2013-14

Summary of reasons for grade

There is a comprehensive suite of documents that addresses the areas of customer hardship, debt, water flow restriction and disconnection. The documents reviewed satisfied the requirements of Clause 4.4a. The staff interviewed were knowledgeable with regard to the policies and procedures dealing with customer hardship, debt, water flow restriction and disconnection. The staff have received regular training on the policies and procedures in place. Sydney Water has taken action to address the issues raised at the last audit. However the document management/control processes need reviewing where necessary action taken to address some version control issues.

Discussion and notes

Overview

Sydney Water's commitment to treating its customers fairly and at the same time safeguarding its revenue is supported via a comprehensive suite of policies and procedures. Following the last audit it had undertaken a review of the documentation and reviewed its training processes.

The BillAssist framework provides a detailed approach to managing customers facing hardship with access to payment plans and other modes of assistance. The staff are trained across the general aspects of customer service as well as in depth training in the BillAssist framework.

On overdue payments, the customer contact is recorded in the CMS (Customer Management System) and the customer provided with a CMS reference number.

Sydney Water informed the auditors that it has a certified Quality Management system in place. As a result, the expectation is that there are robust quality assurance processes in place. However, it was noted that issues with document management/control were identified.

The Performance Indicators Report 2013-14 was reviewed. New indicators on Customers (Sec1.2) have been reported for 2013-14.

Customer hardship, debt, water flow restriction and disconnection Policies and Procedures

Sydney Water's Payment Assistance Policy provides the framework for the approach Sydney Water takes when dealing with customers facing hardship. The Payment Assistance Program aims to:

- Ensure customers have access to essential water services, irrespective of their capacity to pay
- Assist customers to manage their water costs and payments
- Address the needs of specific groups in the community e.g. older Australians, people from a culturally and linguistically diverse background, lower income customers.

The five guiding principles of this policy are:

1. Making it easy for customers to ask for help when having payment difficulties
2. Support customers who are unable to pay water bills
3. Protection from water flow restrictions and debt recovery activity for customers experiencing financial hardship who are unable to pay their water bills
4. Providing a respectful and confidential service
5. Being pro-active in identifying and addressing payment difficulties early.

As stated above the documents reviewed indicate a comprehensive suite of documents. These policies and procedures addresses the requirements of this sub-clause satisfactorily. The staff have been provided with the relevant training and demonstrated their knowledge, capacity and capabilities to adhere to the frameworks in place in order to achieve compliance.

The payment assistance program provides several options for customers who are facing hardship. They include:

- Flexible payment arrangements
- Centrepay – direct billing customers who are on income support
- PlumbAssist – essential and/or emergency plumbing for customers in hardship
- BillAssist – case management for customers in hardship
- Referral to external assistance options including financial counselling

The training provided and the supporting documentation in the form of detailed procedures to follow ensures that Sydney Water is able to assist its customers who are facing hardship without compromising its role as a commercial service provider. The framework for actions to be taken on overdue payments is set by the policy on 'Overdue Payments and Disconnections for non-payment'. This policy includes the following:

- Sydney Water's commitment
- Customers' obligations
- Time given to pay bills
- Process to follow when payments are overdue.

Training

Sydney Water staff in the customer service area and the BillAssist team undergo regular training on customer service framework it has in place. It was stressed by Sydney Water staff at the interview that the selection of staff to undertake tasks within the customer service and BillAssist areas is rigorous. The training program agenda provides a comprehensive coverage of the customer service and BillAssist procedures in place.

The certified Quality Management System provides further assurance that the procedures in place are complied with.

Payment Plans

Sydney Water customers who face financial hardship have access to several payment plan options within its customer service procedures. The payment plan options include:

- Flexible payment arrangements
- Centrepay
- Pensioner concessions
- No Interest Loan scheme.

Furthermore Sydney Water details the hardship relief options in its water bills. This demonstrates that Sydney Water takes every opportunity to provide its customers with relevant information. The available published information and the interview with Sydney Water staff indicates that payment plans are offered to customers in accordance with the procedures in place.

Conditions for disconnection of supply or water flow restriction

Sydney Water's Overdue payments and Disconnections for non-payment Policy provides the framework for restriction and/or disconnection for non-payment for water services. This policy is underpinned by the Overdue payments and disconnection for non-payment procedure. This policy includes the following:

- Sydney Water's commitment
- Customers' obligations
- Time given to pay bills
- Process to follow when payments are overdue.

The process that Sydney Water follows when payments are overdue and the customer has not contacted Sydney Water shows considerable empathy to its customers. The process is as follows:

- If the bill has not been paid by the due date, a reminder notice is sent
- If the bill remains unpaid a disconnection notice is sent
- Following this a notice to restrict or disconnect water supply is hand delivered to the property
- If the bill remains unpaid the property owner or tenant is contacted by phone
- If the bill remains unpaid either the water flow would be restricted or legal action will be taken.

The procedure also details the payment assistance options and also customer's right to make a complaint about Sydney Water if the customer has an unresolved dispute with Sydney Water.

The review of the documentation following the previous audit and focus on issues raised at the last audit has resulted in no similar cases arising in the past financial year.

Provisions for self-identification, identification by Sydney Water of residential customers facing financial hardship

Through the billing process Sydney Water identifies customers facing financial hardship. There is significant amount of information provided to customers relating to payment options in the event they face financial difficulties. The quarterly bill and the "Water wrap" each contains information to assist customers who face hardship. Sydney Water also works loosely with welfare organisations in order to support customers who face hardship.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

There is an opportunity to improve document management processes.

- There are no document identification system such as a numbering system evident
- The version control appears to be lacking
- The Overdue Payments and Disconnection for non-payment Policy has two versions – external and internal. However the two documents have two different dates in its footer.

Detailed Audit Findings Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment		
Sub-Clause	Requirement	Compliance Grade
4.4b	(b) Sydney Water must set out the procedures relating to customer hardship, debt, water flow restriction and disconnection referred to in clause 4.4(a) in the Customer Contract.	Full
Risk		Target for full compliance
Customers are not informed of Sydney Water's hardship, debt, water flow restriction and disconnection processes in the Customer Contract.		Policies and procedures relating to customer hardship, debt, water flow restriction and disconnection are included in the Customer Contract.
Evidence sighted		
Customer Contract – Sections 5 and 6 specifically, as well as the summary of the customer contract – 'Our Contract with You'.		
Summary of reasons for grade		
The Customer Contract and the summary document details the processes Sydney Water will follow in the event of customer hardship. The details in these documents are in accordance with Sydney Water's Policies and Procedures on customer hardship, debt, water flow restriction and disconnection.		
Discussion and notes		
<p>The following are covered in the Customer Contract:</p> <p><i>Hardship</i></p> <ul style="list-style-type: none"> Section 5 - What can I do if I am unable to pay my account? Section 6 – Disconnection or restriction of water and wastewater services <p><i>Debt</i></p> <ul style="list-style-type: none"> Section 5 - What can I do if I am unable to pay my account? Section 6 – Disconnection or restriction of water and wastewater services <p><i>Restriction and Disconnection</i></p> <ul style="list-style-type: none"> S Section 6 – Disconnection or restriction of water and wastewater services <p>In the document Our Contract With You, a summary of the Customer Contract, Pages 8 – 10 deal with Sydney Water's approach to dealing with Hardship, Debt, Restriction and Disconnection in accordance with its policies and procedures.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause		

Detailed Audit Findings Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment		
Sub-Clause	Requirement	Compliance Grade
4.4c	<p>(c) Sydney Water must provide information on its procedures relating to customer hardship, debt, water flow restriction and disconnection free of charge to:</p> <ol style="list-style-type: none"> 1. Residential Customers, at least once annually with their quarterly or other bills 2. Residential Customers who are identified as experiencing financial difficulty 3. Any other person who requests it. 	Full
Risk		Target for full compliance
Customers are not informed of Sydney Water's hardship, debt, water flow restriction and disconnection procedures free of charge.		<p>Policies and procedures relating to customer hardship, debt, water flow restriction and disconnection are made available free of charge to:</p> <ul style="list-style-type: none"> • Residential customers at least once a year with their quarterly bills or other bills • Residential customers who are identified as experiencing financial difficulty • Any other person who requests it.
Evidence sighted		
<ul style="list-style-type: none"> • Customer Contract • Our contract with you – a summary of the customer contract • Water wrap February 2014 • Brochure 'Help in time of financial difficulty' 		
Summary of reasons for grade		
<p>Sydney Water provides its customers with the "Our contract with you" once a year with bills. This action complies with the requirements of sub-clause 4.4 (c)(1).</p> <p>The case management procedure, 'BillAssist – Case Management' details the processes including effective communication processes the case coordinators apply when dealing with customers facing hardship. The procedures in place and the pro-active actions taken by the case coordinators indicate compliance with sub-clause 4.4 (c)(2).</p> <p>Sydney Water's suite of documents available on the website, information in the quarterly bills and the brochure 'Help in time of financial difficulty' coupled with the training the staff undertakes leads to a high level of confidence that Sydney Water complies with sub-clause 4.4 (c)(3).</p>		
Discussion and notes		
<p>The auditors found a comprehensive suite of documents detailing the assistance Sydney Water provides customers who are facing hardship.</p> <p>Sydney Water provides information on customer hardship, debt, water flow restriction and disconnection to its customers via several approaches. They are:</p> <ul style="list-style-type: none"> • Residential customers being sent the summary of the customer contract 'Our contract with you' once a year with the water bills • All water bills contain details on customer assistance • Case coordinators dealing with customers facing hardship providing information on customer 		

assistance

- Upon request the information is provided free of charge
- Sydney Water's website contains Customer Assistance Policy

The auditors believe that the above approaches taken by Sydney Water complies with the requirements of sub-clause 4.4 (c)(1).

The case management procedure, 'BillAssist – Case Management' details the processes case coordinators apply when dealing with customers facing hardship. It details effective communication processes thus – 'Case coordinators will communicate in a range of format to meet the needs of customers. Communication will be tailored is complied with to the needs of the customer'. During the interview the pro-active approach taken by the case coordinators was articulated. The procedures in place and the actions taken by the case coordinators indicate compliance with sub-clause 4.4 (c)(2).

Sydney Water's suite of documents available on the website, information provided with the quarterly bills and the brochure 'Help in time of financial difficulty' coupled with the training the staff undertakes leads to a high level of confidence that Sydney Water complies with sub-clause 4.4 (c)(3).

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause

Detailed Audit Findings Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment		
Sub-Clause	Requirement	Compliance Grade
4.4d	(d) Sydney Water must publish its procedures relating to customer hardship, debt, water flow restriction and disconnection on its website.	Full
Risk		Target for full compliance
Customers are not informed of Sydney Water's hardship, debt, water flow restriction and disconnection procedures in its website.		Policies and procedures relating to customer hardship, debt, water flow restriction and disconnection are published in its website.
Evidence sighted		
<ul style="list-style-type: none"> • Payment assistance policy • Customer contract • Financial assistance page which include: <ul style="list-style-type: none"> — Payment assistance policy — Payment arrangements — BillAssist — PlumbAssist — Overdue payments and disconnection policy. <p>The relevant links are as follows:</p> <ul style="list-style-type: none"> • www.sydneywater.com.au/SW/about-us/our-publications/policies/index.htm • www.sydneywater.com.au/SW/accounts-billing/paying-your-bill/financial-assistance/index.htm 		
Summary of reasons for grade		
The documents detailed under 'Evidence sighted' were located in Sydney Water's website.		
Discussion and notes		
The inclusion of documents in Sydney Water's website demonstrates that Sydney Water has made available procedures relating to customer hardship, debt, water flow restriction and disconnection.		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Practices and procedures relating to customer hardship, debt, water flow restriction and disconnection for non-payment		
Sub-Clause	Requirement	Compliance Grade
4.4e	(e) Sydney Water must advise residential Customers of their rights, including any rights to have a complaint or dispute referred to the Energy and Water Ombudsman NSW for resolution.	Full
Risk		Target for full compliance
Customers are not informed of their rights with regards to resolving disputes with Sydney Water.		Information is provided to customers regarding their rights, including information about referring complaints or disputes to the Energy and Water Ombudsman NSW.
Evidence sighted		
<ul style="list-style-type: none"> • Summary of the Customer Contract - Our Contract with you • Customer contract • Customer Complaint Policy – Sydney Water Website • Overdue payment and disconnection policy. 		
Summary of reasons for grade		
The documents detailed under 'Evidence sighted' demonstrates that Sydney Water provides sufficient information to its customers with regard to their rights, their right to have complaints and disputes referred to the Energy and Water Ombudsman.		
Discussion and notes		
<p>The information Sydney Water provides its customers with regard to their rights, their right to have complaints and disputes referred to the Energy and Water Ombudsman demonstrates that Sydney Water complies with the requirements of the Clause 4.4e. The information is disseminated via the following avenues:</p> <ul style="list-style-type: none"> • Sydney Water website – Customer contract, reference to the Ombudsman's services • Summary of the Customer Contract – 'Our contract with you'. <p>Inclusion of documents in Sydney Water's website demonstrates that Sydney Water has made available procedures relating to customer hardship, debt, water flow restriction and disconnection.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Customer Councils		
Sub-Clause	Requirement	Compliance Grade
4.5.1a	(a) In accordance with the Act, Sydney Water must have in place and regularly consult with a Customer Council to enable community involvement in issues relevant to the performance of Sydney Water's obligations under the Licence. Sydney Water may have one or more Customer Councils.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the Act. Lack of community engagement may result in Sydney Water being seen as a poor corporate citizen.		Having an effective customer council in place.
Evidence sighted		
<ul style="list-style-type: none"> • Customer council charter • Public interest advocacy Centre's submission to IPART's review of the operating licence for Sydney Water • Submission by Total Environment Centre to IPART • Meeting Agendas – 11th September 2011; 11th December 2013; 5th March 2014; 11th June 2014 • Meeting minutes – 11th June 2014 • Business papers: <ul style="list-style-type: none"> — Payment Assistance Program (no date) — Sydney Water news and events 5th March 2014 — Stakeholder engagement – update 6th June 2014 — A new approach to wet weather overflows – update 11th June 2014 — Sydney Water's Corporate Strategy 11th June 2014 — Payment Assistance Program March 2014 — Enhanced customer access project March 2014 — Tap program update 11 December 2013 (unsigned) — Sydney Water and customer value 5th March 2014 — Social media for listening and engaging 5th March 2014 — Update: stakeholder engagement framework 5th March 2014 — Tap program update – Zoo month activation 3rd June 2014 — Street art project 11th June 2014 — Payment assistance program March 2014 — Payment assistance program December 2013 — Update: Stakeholder Governance framework 11th December 2014 — Tap program update 11th September 2013 — Review of Sydney Water's operating licence 11th June 2014. 		
Summary of reasons for grade		
The documents detailed under 'Evidence sighted' demonstrates that Sydney Water has in place a customer council and has regular council meetings and that relevant issues are tabled at these meetings.		

Discussion and notes

The Customer Council Charter details the:

- Council objectives
- Role of the council, responsibilities of the members and Sydney Water
- Membership
- Selection criteria for member agencies and their representatives
- Term of membership
- Administration of meetings
- Funding and resourcing of the Council
- Authority.

Sydney Water will appoint member bodies to the Council to represent one or more of the groups required by the Operating Licence. The selected bodies must satisfy criteria detailed in the Customer Charter. The term of membership is 3 years. The papers put to the Council by Sydney Water are discussed and Council members' views are heard by the senior management of Sydney Water. How these views are considered by the management of Sydney Water is something Sydney Water would determine. A range of strategically important matters are taken to Customer Council for its input and advice. Discussion papers tabled at the Council include Sydney Water and Customer Value, Social Media for Listening and Engaging, Development of a Stakeholder Engagement Framework. There is no compulsion on the part of Sydney Water to accept/action views coming out of the Customer Council. What the Council does is to provide a customer/community view.

The agenda items and business papers submitted to the council meetings held quarterly demonstrates that issues of relevance are tabled at these meetings. A standing agenda item 'Sydney Water news and events' allows issues of relevance to be raised and discussed at the council meetings. The council also receives the annual report.

Sydney Water's framework for the management of the customer council complies with Clause 4.5.1a.

Two members of the Customer Council were interviewed by phone – a board member of the NSW Council of Social Services and a part-time commissioner of the Community Relations Commission of NSW. The following summarises their comments:

Representation

The Council is reasonably representative – 'as good as it can be' given the difficulty people have with time. It is represented by most of the sectors.

Information Provided by Sydney Water

The information provided by Sydney Water is both comprehensive and 'easy to understand for those of us who have no technical background'. The presentations by Sydney Water staff have been quite useful as there are technical issues that can be elaborated for the benefit of those members who have no technical background.

Sydney Water Response

Sydney Water responds to any issues in a timely manner. They offer additional information when requested.

Effectiveness of the Council

The Council has gradually got more effective. The attendance by the Board members, Managing Director and Executive Members has added a lot of value to this sort of meeting. Sydney Water has demonstrated that the operation and effectiveness of the Customer Council is considered important.

Overall Comment

As far as stakeholder engagement, one of the interviewees stated that the customer council was the 'best'. Sydney Water should be commended for the comprehensive Customer Assistance Program in place.

The Public Interest Advocacy Centre in its submission to IPART on Sydney Water's Operating Licence stated "On the whole, PIAC considers that the Customer Council works effectively, allowing consumer representatives to engage with Sydney Water, including senior management (meetings are chaired by Sydney Water Managing Director where possible)".

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings Customer Councils		
Sub-Clause	Requirement	Compliance Grade
4.5.1b	(b) Sydney Water must consult with the Customer Council, in accordance with the terms of the relevant Customer Council Charter, on: <ol style="list-style-type: none"> 1. The interests of Customers and Consumers of Sydney Water 2. The Customer Contract 3. Such other key issues related to Sydney Water's planning and operations as Sydney Water may determine. 	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being seen as a poor corporate citizen who is not in touch with the community.		Sydney Water adhering to the provisions of the customer charter.
Evidence sighted		
<ul style="list-style-type: none"> • Customer council charter • Meeting Agendas – 11th September 2011; 11th December 2013; 5th March 2014; 11th June 2014 • Meeting minutes – 11th June 2014 • Business papers <ul style="list-style-type: none"> — Payment Assistance Program (no date) — Sydney Water news and events 5th March 2014 — Stakeholder engagement – update 6th June 2014 — A new approach to wet weather overflows – update 11th June 2014 — Sydney Water's Corporate Strategy 11th June 2014 — Payment Assistance Program March 2014 — Enhanced customer access project March 2014 — Tap program update 11 December 2013 (unsigned) — Sydney Water and customer value 5th March 2014 — Social media for listening and engaging 5th March 2014 — Update: Stakeholder engagement framework 5th March 2014 — Tap program update – Zoo month activation 3rd June 2014 — Street art project 11th June 2014 — Payment assistance program March 2014 — Payment assistance program December 2013 — Update: Stakeholder Governance framework 11th December 2014 — Tap program update 11th September 2013 — Review of Sydney Water's operating licence 11th June 2014. 		
Summary of reasons for grade		
The documents detailed under 'Evidence sighted' demonstrates that Sydney Water consults with the customer council in accordance with the customer charter.		

Discussion and notes

Two members of the Customer Council were interviewed by phone – a board member of the NSW Council of Social Services and a part-time commissioner of the Community Relations Commission of NSW. The following summarises their comments.

Representation

The Council is reasonably representative – ‘as good as it can be’ given the difficulty people have with time. It is represented by most of the sectors.

Information Provided by Sydney Water

The information provided by Sydney Water is both comprehensive and ‘easy to understand for those of us who have no technical background’. The presentations by Sydney Water staff have been quite useful as there are technical issues that can be elaborated for the benefit of those members who have no technical background.

Sydney Water Response

Sydney Water responds to any issues in a timely manner. They offer additional information when requested.

Effectiveness of the Council

The Council has gradually got more effective. The attendance by the Board members, Managing Director and Executive Members has added a lot of value to this sort of meeting. Sydney Water has demonstrated that the operation and effectiveness of the Customer Council is considered important.

Overall Comment

As far as stakeholder engagement, one of the interviewees stated that the customer council was the ‘best’. Sydney Water should be commended for the comprehensive Customer Assistance Program in place.

The business papers tabled at these meetings demonstrate that the subject matters are relevant to customers and consumers of Sydney Water. The subject matters such as ‘Payment assistance program’ relates to provisions in the Customer Contract.

The standing agenda item ‘Sydney Water news and events’ allows planning and operational issues to be raised and discussed at the council meetings. The business paper ‘A new approach to wet weather overflows – update’ demonstrates the planning/technical nature of the papers presented and discussed at the council meetings.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

A template for papers presented to the council could be of benefit as papers did not have the same format.

Detailed Audit Findings Customer Councils		
Sub-Clause	Requirement	Compliance Grade
4.5.1c	(c) Sydney Water must appoint the members of a Customer Council, consistent with the Licence.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being breach of its licence.		Sydney Water complying with the provisions of its operating licence.
Evidence sighted		
<ul style="list-style-type: none"> Customer council charter Membership list. 		
Summary of reasons for grade		
The customer council charter details the selection criteria for member agencies and their representatives. The membership consists of representatives from a wide range of community and business agencies. The auditors are satisfied that Sydney Water complies with the requirements of Clause 4.5.1c.		
Discussion and notes		
<p>The customer council charter details selection criteria for member agencies and their representatives. The membership of the council consists of representatives from:</p> <ul style="list-style-type: none"> Part time Commissioner - Community Relations Commission NSW Manager Energy Sourcing and Utilisation - BlueScope Steel Member - Nature Conservation Council NSW Director, Western Sydney - Sydney Business Chamber Board member - NSW Council of Social Services Board member - Pittwater Council Water campaigner - Total Environment Centre Generalist Solicitor - Marrickville Legal Centre Vice President - Urban Development Institute of Australia Chief Executive Officer - Illawarra Forum Inc Lawyer - Ethnic Communities Council NSW Senior Policy Officer - Public Interest Advocacy Centre. <p>This is a reasonable range of agencies and their members that represent the consumers, customers and the community at large.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
A template for papers presented to the council could be of benefit as papers did not have the same format.		

Detailed Audit Findings Customer Councils		
Sub-Clause	Requirement	Compliance Grade
4.5.1d	<p>(d) At all times, the membership of a Customer Council must include a representative for the interests of at least each of the following:</p> <ol style="list-style-type: none"> 1. Business and consumer groups 2. Low income households 3. People living in rural and urban fringe areas 4. Residential consumers 5. Environmental groups 6. Local government 7. People from culturally and linguistically diverse backgrounds. 	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water's customer council not being a representative council which would be in breach of the Licence.		The membership of the customer council being representative of business, consumer groups, low income households, people living in rural and urban fringes, residential consumers, environmental groups, local government and people from culturally and linguistically diverse backgrounds.
Evidence sighted		
<ul style="list-style-type: none"> • Customer council charter • Membership list. 		
Summary of reasons for grade		
At best getting reasonable representation for such a council is difficult. Sydney Water has obtained a wide ranging representation for its customer council and should be commended.		
Discussion and notes		
<p>Two members of the Customer Council were interviewed by phone – a board member of the NSW Council of Social Services and a part-time commissioner of the Community Relations Commission of NSW. The following summarises their comments:</p> <p><i>Representation</i></p> <p>The Council is reasonably representative – ‘as good as it can be’ given the difficulty people have with time. It is represented by most of the sectors.</p> <p><i>Information Provided by Sydney Water</i></p> <p>The information provided by Sydney Water is both comprehensive and ‘easy to understand for those of us who have no technical background’. The presentations by Sydney Water staff have been quite useful as there are technical issues that can be elaborated for the benefit of those members who have no technical background.</p> <p><i>Sydney Water Response</i></p> <p>Sydney Water responds to any issues in a timely manner. They offer additional information when requested.</p> <p><i>Effectiveness of the Council</i></p> <p>The Council has gradually got more effective. The attendance by the Board members, Managing Director and Executive Members has added a lot of value to this sort of meeting. Sydney Water has</p>		

demonstrated that the operation and effectiveness of the Customer Council is considered important.

Overall Comment

As far as stakeholder engagement, one of the interviewees stated that the customer council was the 'best'. Sydney Water should be commended for the comprehensive Customer Assistance Program in place.

The customer council charter details selection criteria for member agencies and their representatives. The membership of the council consists of representatives from:

- Community Relations Commission NSW
- BlueScope Steel
- Nature Conservation Council NSW
- Sydney Business Chamber
- NSW Council of Social Services
- Pittwater Council
- Total Environment Centre
- Marrickville Legal Centre
- Urban Development Institute of Australia
- Illawarra Forum Inc
- Ethnic Communities Council NSW
- Public Interest Advocacy Centre.

This is a reasonable range of agencies that represent the consumers, customers and the community at large.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings		Customer Councils
Sub-Clause	Requirement	Compliance Grade
4.5.1e	(e) Sydney Water must provide a Customer Council with information within its possession or under its control (other than information or documents over which Sydney Water or another person claims confidentiality or privilege) necessary to enable that Customer Council to discharge the tasks assigned to it.	Full
Risk		Target for full compliance
Failure to comply will result in the customer council not being effective and unable the council to discharge its duties.		The information provided to council.
Evidence sighted		
<ul style="list-style-type: none"> Customer council charter Meeting Agendas – 11th September 2011; 11th December 2013; 5th March 2014; 11th June 2014 Meeting minutes – 11th June 2014 Business papers: <ul style="list-style-type: none"> Payment Assistance Program (no date) Sydney Water news and events 5th March 2014 Stakeholder engagement – update 6th June 2014 A new approach to wet weather overflows – update 11th June 2014 Sydney Water's Corporate Strategy 11th June 2014 Payment Assistance Program March 2014 Enhanced customer access project March 2014 Tap program update 11 December 2013 (unsigned) Sydney Water and customer value 5th March 2014 Social media for listening and engaging 5th March 2014 Update: stakeholder engagement framework 5th March 2014 Tap program update – Zoo month activation 3rd June 2014 Street art project 11th June 2014 Payment assistance program March 2014 Payment assistance program December 2013 Update: Stakeholder Governance framework 11th December 2014 Tap program update 11th September 2013 Review of Sydney Water's operating licence 11th June 2014. 		
Summary of reasons for grade		
A range of strategically important subject matters have been presented to the council for its input and advice. The Managing Director and key staff members attend the meetings on a regular basis.		
Discussion and notes		
<p>Please see the notes from interviews conducted with two council members.</p> <p>The Public Interest Advocacy Centre in its submission to IPART on Sydney Water's Operating Licence stated "On the whole, PIAC considers that the Customer Council works effectively, allowing consumer representatives to engage with Sydney Water, including senior management (meetings are chaired by Sydney Water Managing Director where possible)".</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Appendix D – Detailed audit findings – Environment – indicators and management

Detailed Audit Findings		Environment Management
Sub-Clause	Requirement	Compliance Grade
6.1a	Sydney Water must maintain an environmental management system certified to AS/NZS ISO 14001:2004 (as updated from time to time) to manage environmental risk of its business and service delivery.	Full
Risk		Target for full compliance
Non-compliance with AS/NZS ISO 14001:2004 may expose the organisation to undue environmental risk.		Environmental management system certified to AS/NZS ISO 14001:2004 (as updated from time to time) to manage environmental risk of business and service delivery.
Evidence sighted		
<ul style="list-style-type: none"> • 2014 Gap Analysis report (SWEMS0403) • 2014 Recertification report (SWEMS0405) • Current AS/NZS ISO 14001:2004 certificate (SWEMS0135) • Printout of audit schedule • Folio of progress – Environment Management. 		
Summary of reasons for grade		
Sydney Water has provided evidence to demonstrate the certification process and that their Environmental Management System is independently audited by a third party accredited organisation.		
Discussion and notes		
<p>The Sydney Water Environmental Management System (SWEMS) is certified by 3rd party auditor every year (a surveillance audit) and every three years, a full recertification audit is conducted. Prior to the full recertification audit, Sydney Water conducts an internal audit against the requirements of the ISO 14001 standard.</p> <p>The Environmental Governance Team (Sydney Water) manages the SWEMS; however, environmental accountability exists across the whole organisation. The mechanism to ensure certification is that Sydney Water has an audit schedules that sets out the timing of the different audits and is based on the anniversary date of the certificate. Besides the internal schedule, the 3rd party auditor would contact Sydney Water to discuss audit timing (currently it is with Global Mark on a 4 year contract).</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
There are no opportunities for improvement for this sub-clause.		

Detailed Audit Findings		Environment Management
Sub-Clause	Requirement	Compliance Grade
6.1c	Sydney Water must complete an annual progress report in accordance with the Reporting Manual, outlining details of Sydney Water's progress with the environmental objectives, targets and timetable.	Full
Risk		Target for full compliance
Without annual progress reporting, Sydney Water may not have a formal mechanism to gauge the progress of actions implemented and whether these activities were effective in managing or minimising Sydney Water's environmental impact.		Annual progress report in accordance with the Reporting Manual, outlining details of its progress with the environmental objectives, targets and timetable.
Evidence sighted		
<ul style="list-style-type: none"> • IPART Reporting Manual for Sydney Water Corporation June 2013 • Final 2012/13 Operating Licence Environment Report • Draft 2013/14 Operating Licence Environment Report • Final 2013/14 Operating Licence Environment Report • Environment Plan 2013-18 • Environment Plan 2014-19. 		
Summary of reasons for grade		
Sydney Water has provided evidence to demonstrate the process by which they assess the progress of their environmental objectives, targets and timetable and the reporting of that progress.		
Discussion and notes		
<p>In January 2014, there is a 6 months internal review of Sydney Water's environmental performance – actions in the last Environment Plan are reviewed by the appropriate data contact and signed off by the Level 3 responsible manager. Each action within the annual report has a due date, status and progress summary.</p> <p>The EMS Steering Committee reviews the environmental performance annually and this would take into account other aspects of the business including any changes in legislation, divisional business plans and Corporate Strategy.</p> <p>Management of heritage and environmentally sensitive areas under Sydney Water's control and waste and energy management are integrated into the targets and actions. Therefore the performance of these actions is listed in various parts of the annual report.</p> <p>For energy management, it was noted that the targets are more to do with maintaining a stable carbon emissions level through various programs, and investigating the use of alternative energy sources.</p> <p>According to IPART's Reporting Manual for Sydney Water Corporation (June 2013), Sydney Water must submit their Environment Plan Annual Report by 1st of October each year. Final reports have been provided and reviewed.</p>		
Recommendation		
There are no recommendations for this sub-clause.		

Opportunities for improvement
There are no opportunities for improvement for this sub-clause.

Detailed Audit Findings		Environment Management
Sub-Clause	Requirement	Compliance Grade
6.1d	Each year Sydney Water must review the Five Year Environment Plan by consulting with DECCW and peak environmental non-governmental organisations to determine whether any changes to the Five Year Environment Plan are required in the subsequent year and the nature of those amendments.	Full
Risk		Target for full compliance
Without consulting relevant stakeholders, Sydney Water runs the risk of not fully understanding the potential impacts their actions may have on others' environmental objectives. This may expose Sydney Water to potential litigation or penalties.		Evidence of communication between EPA (formerly DECCW) and peak environmental non-governmental organisations to determine whether any changes to the Five Year Environment Plan are required in the subsequent year and the nature of those amendments.
Evidence sighted		
<ul style="list-style-type: none"> Folio of progress – Environment Management 2013 Contact list of environmental stakeholders for annual report Letter sent to EPA on the 25 November 2013 Letter sent to Total Environment Centre on the 25 November 2013. 		
Summary of reasons for grade		
Sydney Water has provided evidence to show that they have a systematic approach to ensuring the DECCW and peak non-governmental organisations are consulted annually in regards to the next period's Environment Plan.		
Discussion and notes		
<p>Each year, as part of the EMS review process, any new stakeholders are identified and placed onto the contact list. This review takes into account all business divisions and is driven by the need to meet ISO 14001 requirements.</p> <p>Each year, letters are sent out to the stakeholders for feedback on the Environment Plan annual report. No feedback has been provided by the stakeholders in the last five years. If feedback was given and it was critical, the plan would be amended, go through the Sydney Water approvals process and reissued onto the website. However, if the recommendations are not critical, the comments would be incorporated into the next year's planning process.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
There are no opportunities for improvement for this sub-clause.		

Detailed Audit Findings		Environment Management
Sub-Clause	Requirement	Compliance Grade
6.2a	Sydney Water must monitor, record and compile data on the Environmental Performance Indicators in accordance with its obligations under the Reporting Manual.	Full
Risk		Target for full compliance
Without collecting data, Sydney Water may not have a formal mechanism to gauge the progress of actions implemented and whether activities were effective in managing or minimising Sydney Water's environmental impact.		Monitor, record and compile data on the Environmental Performance Indicators in accordance with its obligations under the Reporting Manual.
Evidence sighted		
<ul style="list-style-type: none"> • IPART Reporting Manual for Sydney Water Corporation June 2013 • Final 2012/13 Operating Licence Environment Report • Draft 2013/14 Operating Licence Environment Report • Final 2013/14 Operating Licence Environment Report • Folio of progress – Environmental indicators • Folio of progress – Trade waste • Folio of progress – Biosolids • Folio of progress – Waste • Folio of progress – Flora and fauna • SWEMS0015 07 Contractor Environmental Performance Report • SWEMS0015 07 Template contractor report – Waste • Example of Contractors Report regarding native vegetation cleared and rehabilitated. 		
Summary of reasons for grade		
Sydney Water has provided evidence to demonstrate the Corporation's method of monitoring, recording and compiling data on the Environmental Performance Indicators in accordance with its obligations under the Reporting Manual.		
Discussion and notes		
<p>A sample of the IPART indicators was assessed. All indicators are reported annually in the Operating Licence Environment Report, but each has their own method of recording the data. Therefore, comments have been provided separately below for the indicators assessed.</p> <p>IPART E7 (S) Percentage of trade waste customers in compliance with their wastewater discharge limits as outlined in their water utility trade waste agreement</p> <p>The indicator has been reported for industrial customers only, and not commercial customers, as they are the higher risk of the two. Sydney Water has 730 industrial customers and each have a single point of contact, a Business Customer Rep (BCR), at Sydney Water. Each trade waste customer is ranked based on the level of risk posed by the contaminants in their discharge. Depending on that risk level, a trade waste customer can sample every day if their discharge is considered high risk and less frequent if they are considered low risk.</p>		

Trade waste water quality data is taken by customers and BCR's. Customers' samples are analysed by independent laboratories and results are sent to the customers' BCR who uploads them into the Trade Waste database. BCR samples are analysed by the Corporations West Ryde lab and directly uploaded into the Trade Waste database. In the case of the direct upload, if the database detects a breach of the trade waste limits, an email is sent to the BCR. For the customers' samples, the BCR sees the breach immediately upon entering the results. If a breach is significant, a task is generated for the BCR to contact the customer. The Business Analyst Customer Service compiles a report each cost period (monthly) to assess the number of breaches and whether actions have been taken by the BCR and customer.

Annually, if 80% of the trade waste customer's samples do not breach their limits, this customer is deemed to be compliant. As there is a time lag between sampling and obtaining results from the laboratory, Sydney Water has chosen to calculate the annual compliance based on the fourth quarter of the previous financial year to the third quarter of the next financial year. Also, as not all customers test their trade waste for pH and temperature, those results have been excluded from the calculations. A sensitivity analysis of this methodology has been conducted by recalculating the compliance percentage based on a true financial year (ie using only results from the first quarter to the fourth quarter of one financial year), as well as including pH and temperature results. The difference between the compliance using one method compared with the other was 0.3%, which validates the indicator calculation methodology.

IPART E8 Total mass of biosolids produced by Sydney Water

Sydney Water has two biosolids contractors that collect and reuse the biosolid. Each contractor reuses 100% of the biosolids for composting and land application. If biosolids do not meet the quality required for its normal end use market, there are a number of options to reprocess to improve the contaminant/stabilisation grades that determine the allowable end use.

Monthly meetings are held with contractors and weekly reports on biosolids volumes per load are submitted to Sydney Water. This data is uploaded onto Sydney Water's Access database. The amount of biosolids beneficially used is audited quarterly and the contractors are formally assessed against their contractual KPIs every six months.

As total mass of biosolids is defined as quantity of biosolids in dry tonnes as per the definitions in *IPART Reporting Manual for Sydney Water Corporation* June 2013, percentage solids is evaluated throughout the year. The frequency of testing would depend on the amount of biosolids produced; the higher the production, the more frequent the sampling frequency with a minimum of three per year.

An average of the percentage solids is calculated for the year and applied to the wet tonnage provided by the contractors in order to calculate biosolids in dry tonnes. Separate testing is done for biosolids and digester sludge and therefore, different averages are applied. Production Officers takes grab samples from centrifuge and composites the samples prior to analysis.

It is noted that if a batch of biosolids is partially removed, the biosolids is retested for percentage solids at the time of removal and therefore, the percentage solids for a single batch may vary. These calculations are conducted by Sydney Water's Contract Officer.

IPART E9 Percentage of solids waste recycled or reused expressed as a percentage of solid waste generated

IPART E10 Total mass of solid waste generated by Sydney Water

There are four main different solid waste streams – internal construction and demolition (C&D) waste, which includes single contract spoils, main repairs and emergency work (involves mainly reactive work and some proactive civil project work), external C&D waste associated with capital programs, administrative waste (ie waste from Sydney Water facilities and offices) and operational waste (ie silt and debris from sewer lines, stormwater, grit and screenings from WWTP, residuals from water treatment, sludge from lagoons, but excludes biosolids).

In general, contractors provide waste data (amount of waste reused, recycled or to landfill) annually. Contractually, Sydney Water has the ability to audit the contractors at least once within the contract life cycle. This audit may include rationalising weighbridge dockets with data reported.

For external C&D waste, as this is the largest producer of waste, additional reports may be required other than waste data (ie data for National Greenhouse and Energy Reporting). The Sydney Water environmental rep for that contract would discuss with contractor what needs to be reported. The data for external C&D waste (either to landfill or recycled) would be sent to Environmental Governance team under the Business Strategy and Resilience Division.

Towards the end of each financial year, the Environmental Project Officer contacts each contract manager within Sydney water to provide annual data on waste produced and reused/recycled. The Environmental Project Officer is sent a list on contractors, removes the ones that do not produce waste and, for the contractors without waste data, their waste numbers are extrapolated based on tonnes per dollar spent on contracts that have reported data. Therefore, the total extrapolated waste produced would be calculated by the following formula:

$$\begin{aligned} \text{Total waste produced(tonnes)} \\ = \text{Actual waste reported (tonnes)} \times \left(1 + \frac{\$ \text{ value of reported contracts}}{\$ \text{ value of relevant contracts}} \right) \end{aligned}$$

It is noted that, for the last financial year, 59% of the waste generation data was based on reported data. This was due to the lack of waste production data from one large contract.

IPART E11 Total area of clearing of native vegetation

IPART E12 Total area of native vegetation rehabilitated

IPART E13 Total area of native vegetation gain due to rehabilitation, replanting and protection by Sydney Water

Operational maintenance and facilities maintenance are conducted by contractors (currently Thiess). This mainly involves weed removal and not capital clearing. The contractor is currently reporting monthly using the environmental indicators in the SWEMS template to report to Sydney Water. Thiess has been asked to reassess past reports to ensure data reported prior to the SWEMS template aligns with the requirements of the SWEMS. The area cleared or rehabilitated is estimated using GIS.

The level of detail within the report will be dependent on the contractor. For example, Greening Australia's monthly reporting for the restoration of bushland at Potts Hill would be more detailed and would include species of weeds removed, nature of bush regeneration, detailed maps of areas worked on and percentage of plants removed.

There are currently discussions between Sydney Water and IPART on these indicators in how to capture all rehabilitation work as this type of activity often occur over a period of time. Sydney Water currently reports the area rehabilitated in the first year only. However, subsequent work conducted on the same plot of land is not taken into account under the current IPART indicators.

For capital works, contractors provide data for particular projects, which is summarised into a table and reported in both the Folio of Progress and Operating Licence Environment Report. The difference between the total area of native vegetation cleared and rehabilitated is the total area of native vegetation gained.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

We suggest that the percentage of contracts where data was not available and therefore had to be extrapolated is included when reporting on the Environmental Performance Indicators. This would provide an indication of the accuracy of the data.

Detailed Audit Findings		Environment Management
Sub-Clause	Requirement	Compliance Grade
6.2b	Sydney Water must report on the Environmental Performance Indicators in accordance with its obligations under the Reporting Manual.	Full
Risk		Target for full compliance
Without the reporting of the Environmental Performance Indicators, the public does not have a formal mechanism to know or gauge the progress of actions implemented by Sydney Water and whether activities were effective in managing or minimising Sydney Water's environmental impact.		Report on the Environmental Performance Indicators in accordance with its obligations under the Reporting Manual.
Evidence sighted		
<ul style="list-style-type: none"> • IPART Reporting Manual for Sydney Water Corporation June 2013 • Final 2012/13 Operating Licence Environment Report • Draft 2013/14 Operating Licence Environment Report • Final 2013/14 Operating Licence Environment Report • Folio of progress – Environmental indicators • Folio of progress – Trade waste • Folio of progress – Biosolids • Folio of progress – Waste • Folio of progress – Flora and fauna. 		
Summary of reasons for grade		
Sydney Water has provided evidence to demonstrate the Corporation's process on reporting annually on the Environmental Performance Indicators in accordance with its obligations under the Reporting Manual.		
Discussion and notes		
<p>Sydney Water produces a Folio of Progress for their IPART Environmental Performance Indicators grouped into the following areas:</p> <ul style="list-style-type: none"> • Wastewater treatment and system discharges • Environmental compliance • Greenhouse gas emissions • Electricity • Trade waste • Biosolids • Waste • Flora and fauna. <p>The Folio of Progress provides details on:</p> <ul style="list-style-type: none"> • Staff responsible for the indicator • Context and background • Relevant definitions, interpretations, exclusions, assumptions, formulas • Rolling five year actions and progress • Internal audit findings • Minister's requirements 		

- List of relevant documents.

The data collation and calculation of the Environmental Performance Indicators are audited annually by a third party auditing organisation (most recently Net Balance) and their findings are summarised in each Folio of Progress.

The information from each of the Folio of Progress is summarised into the Environmental Indicators Report within the Operating Licence Environment Report annually.

According to IPART's Reporting Manual for Sydney Water Corporation (June 2013), Sydney Water must submit their Environment Plan Annual Report by 1st of October each year. Final reports have been provided and reviewed.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

There are no opportunities for improvement for this sub-clause.

Appendix E – Detailed audit findings – Water conservation

Detailed Audit Findings Water Usage		
Sub-Clause	Requirement	Compliance Grade
7.1b	(b) Thereafter, Sydney Water must continue to maintain the Water Usage Level for the remainder of the term of the Licence, to be measured at 30 June each year.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence and in wasting a valuable resource.		The quantity of Drinking Water Sydney Water draws from all sources for water usage is maintained at equal to, or less than, 329 litres per person per day.
Evidence sighted		
<ul style="list-style-type: none"> Water Efficiency Report 2013-14 Quarterly Compliance Report Peer Review of Sydney Water's weather correction model October 2013 Daily Water and Wastewater Trend Tracking September 2009 (software). 		
Summary of reasons for grade		
The evidence sighted details Sydney Water's performance against this Clause. The Water Efficiency Report notes that the water usage was 307 litres per person per day which is well below the target of 329 litres per person per day.		
Discussion and notes		
<p>The Water Efficiency Report 2013-14 details Sydney Water's performance with regard to maintaining the water usage level below 329 litres per person per day. Sydney Water has been below the target level since late 2006. In 2013-14 the usage level was 307 litres per person per day which is well below the target. Water efficiency/use is included in Sydney Water's risk register.</p> <p>Sydney Water corrects the usage level for weather impacts. The correction model used has been peer reviewed in 2013.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Usage		
Sub-Clause	Requirement	Compliance Grade
7.1c	(c) In calculating water usage for the purposes of the Water Usage Level, Sydney Water may make reasonable adjustments to account for the effects of weather on water usage using a methodology approved by IPART.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		Demonstrate that the effects of weather on water usage is taken into consideration using a methodology approved by IPART.
Evidence sighted		
<ul style="list-style-type: none"> Water Efficiency Report 2013-14 (Appendix 2) Peer Review of Sydney Water's weather correction model October 2013 Daily Water and Wastewater Trend Tracking: user Manual, September 2009 Water Filtration Plant Demand Forecasting, Operational Scheduling and WFP Flow Requisitioning – Work Instruction Recording and maintaining historical system demands and Reports – Standard Operating Procedure Cost Period and Demand Management Reports – Work instruction. 		
Summary of reasons for grade		
<p>The evidence sighted details Sydney Water's performance against this Clause. The weather correction model used by Sydney Water was peer reviewed in 2013. The peer review states that <i>"...the model is reasonable and appropriate to meet the needs of Licence requirements"</i>. The peer review also suggested improvements.</p> <p>The auditors are satisfied that Sydney Water complies with Clause 7.1c.</p>		
Discussion and notes		
<p>The Water Efficiency Report 2013-14 Appendix 2 discusses the Correction for Weather when determining water supplied per day per person. The peer review report states that <i>"...the model is reasonable and appropriate to meet the needs of Licence requirements"</i>. There is a user manual for the weather correction model and the Strategic Analytics team are suitably skilled in the use of the model.</p> <p>Auditors sought information on how Sydney Water validated the usage figures. Sydney Water provided documentation that supported the process in place. The documentation is disjointed at this stage and would benefit from a review and streamlining validation process.</p> <p>The auditors are satisfied that Sydney Water complies with Clause 7.1c.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
Review data validation processes and documentation with a view to streamlining the process.		

Detailed Audit Findings Water Usage		
Sub-Clause	Requirement	Compliance Grade
7.1d	(d) If Sydney Water fails to meet the Water Usage Level in a particular year, Sydney Water must demonstrate, to the satisfaction of IPART, that it would not have been reasonable to meet the Water Usage Level in that year.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence and wastage of a valuable resource.		Sydney Water meets the usage level and if it fails to meet this level, it has demonstrated, to the satisfaction of IPART, that it would not have been reasonable to meet the Water Usage Level in that year.
Evidence sighted		
<ul style="list-style-type: none"> Water Efficiency Report 2013-14 (Appendix 2) Peer Review of Sydney Water's weather correction model October 2013 Daily Water and Wastewater Trend Tracking: user Manual, September 2009. 		
Summary of reasons for grade		
The evidence sighted demonstrates that Sydney Water has met the usage level in 2013-14.		
Discussion and notes		
The Water Efficiency Report 2013-14 Figure 2 / Page 2) details the water usage level for 2013-14. The water usage level for 2013-14 is 310 litres per day per person which is well below the target of 329 litres per day per person.		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Leakage		
Sub-Clause	Requirement	Compliance Grade
7.2a	<p>(a) Sydney Water must ensure that the level of water leakage from its Drinking Water supply system (the Water Leakage Level) does not exceed 105 megalitres per day.</p> <p><i>Note: The SWC reporting manual states that IPART has determined that measured leakage which does not exceed the range of 105±16ML/day constitutes compliance with the Water Leakage Level set out in clause 7.2(a) of the Operating Licence. Audit should be against this requirement.</i></p>	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		The level of water leakage from Sydney Water's Drinking Water supply system (the Water Leakage Level) does not exceed 105 ±16 megalitres per day.
Evidence sighted		
<ul style="list-style-type: none"> • Policy: Water Leakage Management, June 2010 • Leakage Management Plan 2010-15 • Procedure: Water Product – Calculation and Reporting – Corporate Water Balance from Storages April 2011 • Active Leak Detection Program – Standard Operating Procedure 30 November 2013 • Reporting Manual for Sydney Water Corporation July 2010. 		
Summary of reasons for grade		
<p>Sydney Water's leakage level for 2013-14 was 107 Megalitres per day. There are documented strategies in place to ensure compliance. There are identified processes in place to mitigate the non-compliance risk.</p> <p>The auditors are satisfied that Sydney Water complies with Clause 7.2a.</p>		
Discussion and notes		
<p>Sydney Water's leakage level for 2013-14 was 107 Megalitres per day and in 2012-13 this level was 120 Megalitres per day. There are documented strategies in place to ensure compliance. There are identified processes in place to mitigate the non-compliance risk. There are regular reporting of the leakage level. Quarterly analysis assist in determining the trends along with the quarterly water balance calculations undertaken allow actions to be taken in order to ensure that the leakage level is maintained below the target level.</p> <p>The auditors are satisfied that Sydney Water complies with Clause 7.2a.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Leakage		
Sub-Clause	Requirement	Compliance Grade
7.2b	(b) When calculating the Water Leakage Level each year, Sydney Water must use the assumptions and methodology approved by IPART.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence and waste valuable water resources.		Sydney Water uses the assumptions and methodology approved by IPART when calculating the Water Leakage Level each year.
Evidence sighted		
<ul style="list-style-type: none"> • Policy: Water Leakage Management, June 2010 • Leakage Management Plan 2010-15 • Procedure: Water Product – Calculation and Reporting – Corporate Water Balance from Storages April 2011. 		
Summary of reasons for grade		
IPART assumptions methodology has been taken into consideration in Procedure: Water Product – Calculation & Reporting – Corporate Water Balance from Storages April 2011.		
Discussion and notes		
IPART reporting manual for Sydney Water requires Sydney Water to use the 'National Performance Framework: Urban performance indicators and definitions Handbook'. Sydney Water has been reporting under this framework for some years. IPART assumptions methodology has been taken into consideration in Procedure: Water Product – Calculation and Reporting – Corporate Water Balance from Storages April 2011.		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Efficiency Programs		
Sub-Clause	Requirement	Compliance Grade
7.3a	(a) Sydney Water must undertake and promote water efficiency programs.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence and result in wastage of a valuable resource.		The depth and breadth of Sydney Water's Water Efficiency programs.
Evidence sighted		
<ul style="list-style-type: none"> • Water Efficiency Report 2013-14 • Print coverage Hills Shire Times 22nd April 2014 • Print coverage Hills Shire Times 6th June 2014 • SWA71_Water_Wise_Factsheet_Home_FNL_OL_WEB5 • Water Wrap Feb 2014-Apr2014 • Water Wrap Nov 2013-Jan2014 • Water Conservation Strategy 2010-2015 • Water bill – example • Sentiment Monitor • Sponsorship programs • Social media. 		
Summary of reasons for grade		
The evidence sighted demonstrates Sydney Water as having a comprehensive framework to promote water efficiency programs. Sydney Water uses several avenues to promote its water efficiency programs.		
Discussion and notes		
<p>Sydney Water uses the following avenues to promote water efficiency:</p> <ul style="list-style-type: none"> • Social media • Water bills and Water Wrap newsletter which reaches 1.75 million customers each quarter • Local newspapers • Sponsorship. <p>The awareness of the above promotional activities is tracked through Sydney Water's sentiment monitor. Sydney Water has maintained a water usage level at 310 megalitres per day per person when the target is at 329 megalitres per day per person. The programs are reviewed annually and reported in the Water Efficiency Report. Programs such PlumbAssist that helps customers in hardship to manage their water use and leaks around the home.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Efficiency Programs		
Sub-Clause	Requirement	Compliance Grade
7.3b	(b) Sydney Water must give due consideration to water efficiency and other water conservation measures as part of planning the future provision of its Services, including addressing water leakage.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		Has Sydney Water given due consideration to water efficiency and other water conservation measures when planning future provision of its Services, including addressing water leakage.
Evidence sighted		
<ul style="list-style-type: none"> Water Efficiency Report 2013-14 2010 Memo – Sutherland Infill Development, Approval to Defer Sutherland Infill Area Write-off Approval. 		
Summary of reasons for grade		
The evidence sighted along with the interviews with Sydney Water staff demonstrates Sydney Water giving due consideration to water efficiency and other water conservation measures when planning future provision of its Services, including addressing water leakage.		
Discussion and notes		
<p>Sydney Water has comprehensive programs on water efficiency, conservation and leakage management in place. Good practice and commercial focus suggests that Sydney Water will be giving due consideration to the outcomes of the water efficiency, conservation and leakage management programs. During the audit interviews, Sydney Water staff provided several examples – verbally. Subsequently a documented example was provided – Sutherland Infill Development. Due to operational change and peak demand reduction, Sutherland system amplification is no longer required for growth in the next 20 years. Thus deferring and potentially eliminate an estimated \$8M of proposed water amplifications in the Sutherland zone.</p> <p>The use of reduced demand assumptions (actual vs assumed) has allowed a number of capital expenditure projects to be delayed or avoided as shown via the Sutherland Infill Project. Sydney Water has been able defer capital expenditure by delaying network amplification and delayed bulk transfer systems as a direct result of water efficiency, conservation and leakage reduction programs.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Recycling Program (including stormwater)		
Sub-Clause	Requirement	Compliance Grade
7.4a	(a) Sydney Water must promote, foster and encourage the production and use of Recycled Water in the Area of Operations.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		Has Sydney Water adequately promoted, fostered and encouraged the production and use of Recycled Water in the Area of its Operations.
Evidence sighted		
<ul style="list-style-type: none"> • Water Efficiency Report 2013-14 • Water recycling – what to consider before setting up a recycled water scheme • Sewer mining – how to set up a sewer mining scheme • Stormwater harvesting – how to collect and re-use stormwater from Sydney Water's stormwater system. 		
Summary of reasons for grade		
The evidence sighted along with the interviews with Sydney Water staff demonstrated Sydney Water having programs in place to promote, foster and encourage water recycling in its areas of operation.		
Discussion and notes		
<p>The documents sighted indicates that Sydney Water is committed to water recycling. In 2013-14 it had recycled close to four times the volume it recycled in the year 2000. It also facilitates third party recycling schemes, sharing knowledge and participating in research to promote water recycling. Sydney Water operates 18 recycled water plants that support 23 schemes. The Sydney water website carries guidelines and documents to assist the development of recycled water sources. Sydney Water works closely with developers to assess financial viability.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Recycling Program (including stormwater)		
Sub-Clause	Requirement	Compliance Grade
7.4b	(b) Sydney Water must: <ol style="list-style-type: none"> 1. Meet any target relating to the production and/or use of Recycled Water set by the Minister from time to time consistent with the objectives of the Metropolitan Water Plan 2. Implement any particular Recycled Water schemes indicated by the Minister so as to meet any target in clause 7.4(b)(1) above. 	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		Sydney Water has met the target relating to the production and/or use of Recycled Water set by the Minister consistent with the objectives of the Metropolitan Water Plan and implemented any particular Recycled Water schemes indicated by the Minister so as to meet any target in clause 7.4(b)(1).
Evidence sighted		
<ul style="list-style-type: none"> • Water Efficiency Report 2013-14. 		
Summary of reasons for grade		
The evidence sighted along with the interviews with Sydney Water staff demonstrate Sydney Water having programs in place to contribute to the Government's recycled water targets noting that Sydney Water is not wholly responsible for achieving the Government's targets for recycled water.		
Discussion and notes		
<p>The documents sighted indicates that Sydney Water is committed to water recycling. In 2013-14 it had recycled close to four times the volume it recycled in the year 2000. It also facilitates third party recycling schemes, sharing knowledge and participating in research to promote water recycling. Sydney Water operates 18 recycled water plants that support 23 schemes. The Sydney water website carries guidelines and documents to assist the development of recycled water sources. Sydney Water works closely with developers to assess financial viability.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Recycling Program (including stormwater)		
Sub-Clause	Requirement	Compliance Grade
7.4c	(c) Sydney Water is not required to undertake any Recycled Water scheme where it is not financially viable to do so.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		Sydney Water only undertake Recycled Water schemes where it is financially viable to do so.
Evidence sighted		
<ul style="list-style-type: none"> Water Efficiency Report 2013-14. 		
Summary of reasons for grade		
<p>The evidence sighted along with the interviews with Sydney Water staff demonstrated that Sydney Water has robust processes in place to assess financial viability of recycled water schemes. The Executive and the Board of Sydney Water approving the expenditure on recycle water schemes ensures that assessment of financial viability takes place at the highest levels of the organisation.</p> <p>The auditors are satisfied that Sydney Water complies with the requirements of Clause 7.4c.</p>		
Discussion and notes		
<p>Sydney Water has a robust internal process to assess the financial viability of recycle water schemes. Sydney Water has assessed in excess of 100 potential recycled water schemes. Promising schemes are progressed to business case development. The business cases are then assessed by Sydney Water's Financial Performance and Review Committee (FPRC). Where the business case is approved it is prioritised using Sydney Water's capital prioritisation framework. The Executive and the Board will then consider the business cases for approving expenditure, thus ensuring overview of such expenditure at the highest levels of the organisation.</p> <p>The auditors are satisfied that Sydney Water complies with the requirements of Clause 7.4c.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Conservation Strategy Document and Annual Report		
Sub-Clause	Requirement	Compliance Grade
7.5a	<p>(a) Sydney Water must prepare and submit to IPART and the Minister by 31 December 2010 a Five Year Water Conservation Strategy Document covering the term of the Licence. The Five Year Water Conservation Strategy Document must include details of:</p> <ol style="list-style-type: none"> 1. Strategies relating to water leakage 2. Strategies relating to recycled water 3. Strategies relating to water efficiency 4. How the water conservation strategies outlined in paragraphs (a)(1) – (a)(3) above contribute to the objectives and targets outlined in the Metropolitan Water Plan. 	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		<p>Sydney Water has submitted to IPART and the Minister by 31 December 2010 a Five Year Water Conservation Strategy Document covering the term of the Licence. The Five Year Water Conservation Strategy Document has included:</p> <ol style="list-style-type: none"> 1. Strategies relating to water leakage 2. Strategies relating to recycled water 3. Strategies relating to water efficiency 4. How the water conservation strategies outlined in paragraphs (a)(1) – (a)(3) above contribute to the objectives and targets outlined in the Metropolitan Water Plan.
Evidence sighted		
<ul style="list-style-type: none"> • Water Conservation Strategy 2010-2015 • Water Efficiency Report 2013-14. 		
Summary of reasons for grade		
The evidence sighted along with the interviews with Sydney Water staff demonstrated that Sydney Water has provided a five year water conservation strategy document in time. The Water Conservation Strategy 2010-2015 details the strategies undertaken by Sydney Water which addresses the requirements of Clause 7.5 a.		
Discussion and notes		
<p>The water conservation strategies detailed in the document Water Conservation Strategy 2010-2015 include:</p> <ul style="list-style-type: none"> • Water efficiency in the form of residential, business sector, and school and council programs • Leakage management programs • Recycled water programs. <p>These programs included in the strategy are reviewed periodically in response to changes in customer needs, new technologies and regulatory requirements.</p> <p>Sydney Water is responsible for contributing to two targets in the 2010 Metropolitan Water Plan. Sydney Water reports on how its water conservation strategies contribute to the targets set in the metropolitan Water Plan. Sydney Water's Water Efficiency Report 2013-14 details performance against the strategies in place relating to water leakage, water efficiency and recycled water.</p> <p>The auditors are satisfied that Sydney Water complies with the requirements of Clause 7.5 a.</p>		

Recommendation
There are no recommendations for this sub-clause.
Opportunities for improvement
No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings Water Conservation Strategy Document and Annual Report		
Sub-Clause	Requirement	Compliance Grade
7.5b	(b) The Five Year Water Conservation Strategy Document must provide an analysis of current and future programs and projects being undertaken, and expected to be undertaken, by Sydney Water. In particular, the Five Year Water Conservation Strategy Document must outline Sydney Water's water conservation objectives, targets and timetable for the entire term of the Licence.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		The Five Year Water Conservation Strategy Document provides an analysis of current and future programs and projects being undertaken, and expected to be undertaken, by Sydney Water. In particular, the Five Year Water Conservation Strategy Document has outlined Sydney Water's water conservation objectives, targets and timetable for the entire term of the Licence.
Evidence sighted		
<ul style="list-style-type: none"> Water Conservation Strategy 2010-2015 Water Efficiency Report 2013-14. 		
Summary of reasons for grade		
The evidence sighted along with the interviews with Sydney Water staff has satisfied the auditors that the Water Conservation Strategy document details analyses of current and future programs/projects and outlines Sydney Water's water conservation objectives, targets and timetable for the entire term of the Licence.		
Discussion and notes		
<p>The Water Conservation Strategy 2010-2015 addresses the following:</p> <ul style="list-style-type: none"> Achievements and future savings: <ul style="list-style-type: none"> Water efficiency and leakage reduction programs Water recycling. The strategy and programs to 2015 which includes targets for: <ul style="list-style-type: none"> Residential Non-residential Government and schools Leak management Water recycling Water conservation support. <p>Overall the strategies are working as the water usage levels of 307 litres per person per day which is well below the target of 329 litres per person per day.</p> <p>The programs detailed in the Water Conservation Strategy 2010-2015 are reviewed periodically in response to changes in customer needs, new technologies and regulatory requirements.</p> <p>Sydney Water is responsible for contributing to two targets in the 2010 Metropolitan Water Plan. Sydney Water reports on how its water conservation strategies contribute to the targets set in the metropolitan Water Plan. Sydney Water's Water Efficiency Report 2013-14 details performance against the strategies in place relating to water leakage, water efficiency and recycled water.</p>		

Recommendation
There are no recommendations for this sub-clause.
Opportunities for improvement
No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings Water Conservation Strategy Document and Annual Report		
Sub-Clause	Requirement	Compliance Grade
7.5c	(c) Sydney Water must provide an annual report on its progress in implementing its water conservation strategies in accordance with the Reporting Manual. The annual report must include an explanation of how work done for the purpose of implementing the water conservation strategies undertaken during the year contribute to the objectives and targets outlined in the Metropolitan Water Plan.	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		Sydney Water has provided an annual report on its progress in implementing its water conservation strategies in accordance with the Reporting Manual. The annual report has included an explanation of how work done for the purpose of implementing the water conservation strategies undertaken during the year contributed to the objectives and targets outlined in the Metropolitan Water Plan.
Evidence sighted		
<ul style="list-style-type: none"> Water Efficiency Report 2013-14 Water Conservation Strategy 2010-2015. 		
Summary of reasons for grade		
The evidence sighted along with the interviews with Sydney Water staff has satisfied the auditors that the Water Efficiency Report 2013-14 details the progress in the implementation of its water conservation strategies how the work undertaken in accordance with the water conservation strategies has contributed to the objectives and targets outlined in the metropolitan Water Plan.		
Discussion and notes		
<p>The Water Efficiency Report 2013-14 references the Water Conservation Strategy 2010-2015 document, water use targets and the Metropolitan Water Plan. The Water Efficiency Report 2013-14 details the following:</p> <ul style="list-style-type: none"> Water efficiency in 2013-14 Leak management in 2013-14 Water recycling in 2013-14 Projects planned for 2013-14. <p>Sydney Water contributes to two targets in the 2010 Metropolitan Water Plan:</p> <ol style="list-style-type: none"> To recycle 70 billion litres of water each year by 2015 To save 145 billion litres of water each year by 2015 through water efficiency measures (including leak management). <p>The Water Efficiency Report 2013-14 details how the water conservation strategies have contributed to the metropolitan water plan targets.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Detailed Audit Findings Water Conservation Strategy Document and Annual Report		
Sub-Clause	Requirement	Compliance Grade
7.5d	(d) The following documents must be placed on Sydney Water's website: <ol style="list-style-type: none"> 1. The annual report on Sydney Water's progress in implementing its water conservation strategies required under clause 7.2(c) 2. The Five Year Water Conservation Strategy Document 	Full
Risk		Target for full compliance
Failure to comply will result in Sydney Water being in breach of the operating licence.		The following documents have been placed on Sydney Water's website: <ol style="list-style-type: none"> 1. The annual report on Sydney Water's progress in implementing its water conservation strategies required under clause 7.2(c) 2. The Five Year Water Conservation Strategy Document.
Evidence sighted		
<ul style="list-style-type: none"> • Water Efficiency Report 2012-13 • Water Conservation Strategy 2010-2015. 		
Summary of reasons for grade		
<p>The Water Efficiency Report 2012-13 and the Water Conservation Strategy 2010-2015 documents are in the Sydney Water website. However the Water Efficiency Report 2013-14 is yet to be included in the website. The auditors were assured that the report will be included shortly in its website.</p> <p>Subject to assurances provided by Sydney Water staff on the inclusion of the Water Efficiency Report 2013-14 in its website in the very near future.</p>		
Discussion and notes		
<p>Water Efficiency Report 2013-14 is yet to be included in the website. The Sydney Water Annual Report 2014 is yet to be placed in its website as well. This is a timing issue rather than a reluctance to include these reports in its website. The timing of the website publication of the Water Efficiency Report coincides with the release of the Sydney Water Annual Report, which is tabled in Parliament in November each year. The Sydney Water Annual Report and related reports including the Water Efficiency Report and the Operating Licence Environment Report are posted on the website concurrently in late November / early December.</p>		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
No opportunities for improvement have been identified in relation to this sub-clause.		

Appendix F – Detailed audit findings – Reporting and maintaining records

Detailed Audit Findings		Indicators
Sub-Clause	Requirement	Compliance Grade
9 IPART Customer Indicators C1 – C11	Audit to check calculation methods of a sample of IPART performance indicators. Indicators to be audited are Customer indicators.	Full
Risk		Target for full compliance
Non-compliance would indicate a risk that systems and processes were not being followed or that customer service levels are not adequately captured.		IPART indicators must be reported in accordance with the methodology documented in the "Reporting Manual for Sydney Water Corporation – Appendix E IPART Performance Indicators – customers June 2013.
Evidence sighted		
<ul style="list-style-type: none"> Annual 5Yr DWQMP Report_2012-13_final_260913 Annual RWQM Report_2012-13_final Environment Plan 2013-18 Letter SWC to IPART_OL 1 Sept Rpts 2012-13 Letter to IPART_signed MD Operating Licence Environment Report 2012-13_final Sch A_ OLCR_Non compliances 2012-13 Sch B - System Performance Standards Report 2012-13 Sch C - Performance Indicators Report 2012-13 Sch D Water Efficiency Report 2012-13 Sch E - PSP Annual Report 2012-13 Sch F - DWQ-4th Quarterly report 2012-13 Sch G - RWQ_Report_Health_1213_4th Quarter_Final Sch H - State of the Assets Report 2012 SWC Operating Licence Statement of Compliance 2012-13 Operating Licence 2010-2015 Performance Indicators Report 2013-2014 Screen shots of CMS – Service Requests Customer and Community Relations Division Operating Licence/ Customer Contract –Customer Complaints – Resolution analysis by Age June 2014 PROFORMA 2.0 Customer and Community Relations Division Operating Licence/ Customer Contract –Customer Complaints – Resolution analysis by Age MARCH 2014 PROFORMA 2.0 EWON LETER 6th August 2014 from C Petre. Operating Licence Compliance – Customer Complaints 2013-14 CONTACT INTERACTION 2013-14 sheet Customer and Community Relations Operating Licence / Customer Contract Debt and Meter Administration June 2014 PROFORMA 6 Customer and Community Relations Operating Licence / Customer Contract Customer Hardship PROFORMA 5.5 CAP Report June 2014 		

- CMS CAP EXIT REPORT 2014 Spreadsheet.

Summary of reasons for grade

Full compliance was awarded for this sub-clause. Interviews and evidence indicate that reporting is being undertaken in accordance with the Reporting Manual for Sydney water Corporation June 2013.

Discussion and notes

Overview

Sydney Water has systems and procedures in place to allow for the reliable and accurate reporting of indicators in accordance with the Sydney water Corporation water Reporting manual June 2013 (the Manual) and with the 2013 – 14 National Performance Framework Urban performance reporting indicators and definitions handbook. Customer indicators were the focus of the 2014 audit and the reporting of these with high accuracy and sound reliability indicates the intent of Sydney Water to capture current performance, to understand deficiencies, to highlight successes and to drive improvement.

Of note are the three records control systems, ACCESS, Maximo and CMS which together allow for the servicing of customers, the collection and storage of customer related data and the query and reporting of indicator data. In some instances additional evidence provided prior to the interview, would have assisted the auditor in the checking of samples of data and better determination of the accuracy and reliability of data.

IPART C1

This indicator was reported as per the Manual. Basic calculation checked. Procedure for calculation conformed.

- Accuracy – assessed as being high +-5%
- Reliability – Based on sound records.

IPART C2

Basic calculations checked. Procedure for calculation of abandon calls is sound.

- Accuracy – assessed as being high +-5%
- Reliability – Based on sound records.

IPART C3

Basic calculations checked. ACCESS system for storing records of all billing. procedure for calculation in accordance with the Manual.

- Accuracy – assessed as being high +-5% (1000 errors in 1800,000)
- Reliability – Based on sound records.

IPART C4

Reported as 0. Procedure for calculation in accordance with the Manual.

- Accuracy – assessed as being high
- Reliability – Based on sound records.

IPART C5

Reported as 0. Procedure for calculation in accordance with the Manual.

- Accuracy – assessed as being high
- Reliability – Based on sound records.

IPART C6

Basic calculation and sub-set tallies checked. Increase noted as due to more than previous year due to more proactive approach to restrictions. Reported as 8226 which varies from NWI C18 reported as 10502. The difference in reporting was attributed to counting multiple restrictions on the same client for the NWI indicator. Reporting in this format is in accordance with the Manual.

- Accuracy – assessed as being high. Limited scope for over / under estimation due to nature of works (restrictor) and limited number of cases
- Reliability – Based on sound records with ACCESS database storage.

IPART C7

Basic calculation and sub-set tallies checked. Increase noted as for C6. Query of ACCESS based on individual non-residential customers, rather than the frequency of restrictions applied. Calculation in accordance with the manual.

- Accuracy – assessed as being high. Limited scope for over / under estimation due to nature of works (restrictor) and limited number of cases
- Reliability – Based on sound records with ACCESS database storage.

IPART C8

Basic calculation checked and reporting fields reviewed in query code. Reported in accordance with the Manual. The number of residential properties total is calculated as per NWI C2 with the highest reliability and accuracy gradings awarded.

- Accuracy – assessed as being high
- Reliability – Based on sound records.

IPART C9

Calculation checked. System for capturing data sound. Some error noted in the calculation as stable within +-\$100 for average debts of \$703 for customers on payment plans and \$993 for Bill Assist customers.

- Accuracy – assessed as having the potential for greater than +-10% error but less than+- 20%
- Reliability – Based on sound records.

IPART C10

Partly derived from C8 with =C8- CPAY-PAS (Payment assistance scheme)-on agreement but have not met made a payment yet. Derived from a single field in ACCESS. Reporting in accordance with the Manual.

- Accuracy – assessed as being high
- Reliability – Based on sound records.

IPART C11

The calculation method avoids double counting from the two sources of data – the ACCESS and Bill Assist system. Based on the evidence checked the accuracy is considered high. Further evidence available for checking would assist in this determination.

- Accuracy – assessed as being high

Reliability – Based on sound records captured in both systems.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

There are no opportunities for improvement for this sub-clause.

Detailed Audit Findings		Reporting and maintaining records
Sub-Clause	Requirement	Compliance Grade
9a	(a) Sydney Water must comply with its reporting obligations set out in the Reporting Manual and must report to IPART in accordance with the Reporting Manual.	Full
Risk	Target for full compliance	
Reporting assists Sydney Water to assess trends and improve on current practices where required. It provides assurance to regulatory agencies, stakeholders and the community.	Reports to be provided as required in the Reporting Manual.	
Evidence sighted		
<ul style="list-style-type: none">Annual 5Yr DWQMP Report_2012-13_final_260913Annual RWQM Report_2012-13_finalEnvironment Plan 2013-18Letter SYDNEY WATER to IPART_OL 1 Sept Rpts 2012-13Letter to IPART_signed MDOperating Licence Environment Report 2012-13_finalSch A_ OLCR_Non compliances 2012-13Sch B - System Performance Standards Report 2012-13Sch C - Performance Indicators Report 2012-13Sch D Water Efficiency Report 2012-13Sch E - PSP Annual Report 2012-13Sch F - DWQ-4th Quarterly report 2012-13Sch G - RWQ_Report_Health_1213_4th Quarter_FinalSch H - State of the Assets Report 2012SYDNEY WATER Operating Licence Statement of Compliance 2012-13#9 - 1 Annual Drinking Water Quality Monitoring Plan 2013-14 ver2 with attachment, Project Delivery – Reporting#9 - 2 DW Operational monitoring plan 2013-14 Final#9 - 3 WPIMS5228 Drinking Water Quality event Management Plan.		
Summary of reasons for grade		
The evidence demonstrated that reporting had been performed in accordance with the Reporting Manual for Sydney Water Corporation June 2013 (the Reporting Manual). This included a review of quality and timeliness for the deliverables listed in the Reporting Manual. Reporting was to the satisfaction of NSW Health. The accuracy and reliability of the reported information, including indicators was reviewed separate to the assessment of this clause and is therefore captured under		

other clauses.

Discussion and notes

Two lines of inquiry were perused in order to assess this clause as being fully compliant. These were to check that all the reports required in the reporting manual were delivered for the audit period, and that these were reported on time.

The annual compliance and performance reports for 2012-13 required to IPART by 1 September 2013 under Sydney Water's 2010-2015 Operating Licence were issued on 30 August 2013. The reports comprised of:

- Annual Compliance Report Certification (Statement of Compliance)
- Schedule A – List on non-compliances
- Schedule B – System Performance Standards Report
- Schedule C – Performance Indicators Report (excluding environmental indicators – to be reported by 1 October)
- Schedule D – Water Efficiency Report (covering the requirement for a water conservation annual report)
- Schedule E – Priority Sewerage Program Annual Report
- Schedule F – Drinking Water Quality Monitoring Report for 4th Quarter ending 30 June 2013
- Schedule E – Recycled Water Quality Monitoring Report for 4th Quarter ending 30 June 2013
- Schedule H – 2012 State of the Assets Report.

NSW Health were contacted in regards reporting and acknowledged that reporting was in accordance with Sydney Water's obligations. DW and RW Quality quarterly and annual reports were provided to NSW Health at the appropriate times, with the annual reports also submitted to IPART on time.

Further to these reports Quarterly web data and incident and emergency reporting was noted as being submitted in accordance with the requirements of the Reporting Manual.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

There are no opportunities for improvement for this sub-clause.

Detailed Audit Findings		Reporting and maintaining records
Sub-Clause	Requirement	Compliance Grade
9b	Sydney Water must provide to NSW Health a copy of any report referred to in the Reporting Manual relating to water quality monitoring.	Full
Risk	Target for full compliance	
Water quality monitoring is required for both short term notifications and longer term trends. It provides assurance to regulatory agencies, stakeholders and the community.	Reports to be provided as required in the Reporting Manual.	
Evidence sighted		
<div>Drinking Water</div> <ul style="list-style-type: none">Section 6.1 of Annual Drinking Water Quality Monitoring Plan 2013-14Quarterly Drinking Water Quality Monitoring Reports for NSW HealthAnnual report: http://www.sydneywater.com.au/SW/about-us/our-publications/annual-report/index.htmFluoride Report Combined - May 2014Fluoride Report Combined - June 2014Quarterly Drinking Water Quality Reports: http://www.sydneywater.com.au/SW/water-the-environment/how-we-manage-sydney-s-water/waterquality/our-monitoring-program/index.htm3rd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health Dropbox notificationDaily Exception Report FW 2014-08-25 15 18 37 602 - Automated email notification from AMD's Actions DatabaseE. coli investigation report 2014-03-03 Dural Res WS0039Revised - 4th Quarterly Drinking Water Quality Monitoring Report to NSW Health Dropbox notificationBMIS0038 SCA and SW Protocol for response to the detection of Cryptosporidium and Giardia in Drinking water SupplyJune 14 Monthly Disinfection ReportExamples - North Richmond WFP positive Cryptosporidium notifications 10/07/2013 and 30/04/2014:<ul style="list-style-type: none">Nth Richmond HRN12_TAP 2013 07 10Nth Richmond positive notification - 2013 07 02Nth Richmond Follow up samples - 2013 07 02Nth Richmond HRN12_TAP 2014 04 30Nth Richmond positive notification - 2014 04 30Nth Richmond Follow up samples - 2014 04 30.Macarthur Debrief_Final_11072014. <div>Recycled Water</div> <ul style="list-style-type: none">Final_RWQ_Report_Health_1314_1st Quarter Final1st Quarter Drinking Water and Recycled Water Quality Reports to NSW Health – email evidence of submissionFinal_RWQ_Report_Health_1314_2nd Quarter – signed2nd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health – email evidence of submissionQuarterly Recycled Water Report to NSW Health Q3 2013-14		

- 3rd Quarterly Drinking Water and Recycled Water Quality Monitoring Reports to NSW Health – email evidence of submission
- Quarterly recycled water quality monitoring report for NSW Health 2013-2014 Quarter Four
- Labware Notification - Recycled Water 2013 08 05
- Labware Notification - Recycled Water 2013 08 05 A&R follow-up
- Labware Notification - Recycled Water 2014 02 06RW Ref Doc12 Labware Notification - Recycled Water 2013 08 05
- Labware Notification - Recycled Water 2013 08 05 A&R follow-up
- Labware Notification - Recycled Water 2014 02 06
- August exception report - Recycled Water for Corporate Performance Report
- Dump of RW Quality Incidents in SWIRL 2013_14
- SWIRL Incident # INC-2467 and INC-4004
- RW Ref Doc14 West Camden Irrigation Scheme - Monthly Performance Report 2014-15
- RW Ref Doc20 Elizabeth Macathur Supply Scheme 4th Quarterly Client Report
- RW Ref Doc3 Recycled Water Monitoring 2013-14.

Summary of reasons for grade

Sydney Water has complied with all requirements set out in the Reporting Manual. A significant amount of verification and operational monitoring and reporting is undertaken. This is complimented by incident and alert notification reporting, which is highly automated. Reporting was conducted in a timely manner and appropriate to the satisfaction of NSW Health.

Discussion and notes

Drinking Water

Sydney Water produces detailed summary reports of drinking water quality monitoring and these reports are made available to the public on the Sydney Water website around 4 weeks after the end of each quarter. Sydney Water also produces an exception based Quarterly Drinking Water Quality Monitoring Report and delivers to NSW Health within 6 weeks of the end of the quarter.

An Annual report on the Implementation of the Five Year DWQMP is to be provided to NSW Health and IPART on 1 October each year. The annual report for 2012-13 was produced by Sydney Water and delivered to NSW Health on 30 September 2013 and IPART on 27 September 2013. The annual report for 2013-14 is on schedule to be delivered to NSW Health and IPART by 1 October 2014. Sydney Water must also provide a monthly report in the second week of each month of fluoride monitoring to NSW Health in accordance with the Code of Practice for Fluoridation of Public Water Supplies. All fluoride reports for the months of July 2013 to June 2014 were issued to NSW Health on time as per timeline in Reporting.

Quarterly Drinking Water Quality Reports are published quarterly on the website. The report covers water quality results and performance from inflows, storages, WFPs and the customer supply systems (customers' taps) for the quarter and the rolling 12 months.

Incidents are reported via the secure Incident Reporting (SWIRL) website and a summary is included in quarterly reports as per the Drinking Water Quality Incident Management SOP (WPIMS5228). Incident and notification reports were required for some water quality events. Auto email notifications occur for timely responsiveness. Incident de-brief are held for events, such as the Macarthur Water Filtration Plant high turbidity event in November 2013.

Recycled Water

Sydney Water carried out monitoring of recycled water quality as documented in the Annual Recycled Water Quality Monitoring Plan 2013/14. All data is collated into Quarterly reports, including exceptions and relevant discussion of such, which is provided to various Sydney Water staff, and to NSW Health. Any issues of concern are discussed with NSW Health at the Joint Operational Group meetings. Any result obtained outside the operating targets set out in the Monitoring Plan is advised to the relevant operations staff for information and action as required. Where relevant the operation team will enter this result in the Sydney Water incident management system along with any relevant information as to plant operating and CCP indicators at the time the sample was taken, along with any actions taken. The incident system automatically notifies NSW Health who has direct access to the system.

Various recycled water quality exceptions have occurred and have been reported. Where appropriate NSW Health has been informed via the SW incident reporting system of these exceptions. Plant Standard Incident Procedures (SIPs) are treated as controlled documents. Recycled water incidents were notified using SWIRL and recorded. No emergencies occurred in the audit period involving recycled water and thus there are no formal debriefs available in the period.

Recommendation

There are no recommendations in relation to this sub-clause.

Opportunities for improvement

No opportunities for improvement have been identified in relation to this sub-clause.

Detailed Audit Findings		Reporting and maintaining records
Sub-Clause	Requirement	Compliance Grade
9c	(c) Sydney Water must maintain record systems that are sufficient to enable it to accurately report in accordance with clause 9(a).	Full
Risk	Target for full compliance	
Maintaining records assists Sydney Water to assess trends and improve on current practices where required. It provides assurance to regulatory agencies, stakeholders and the community.	Records systems enable reports to be provided as required in the Reporting Manual.	
Evidence sighted		
<ul style="list-style-type: none">• Annual Drinking Water Quality Monitoring Plan 2013-14 ver2 with attachment, Project Delivery – Reporting• DW Operational monitoring plan 2013-14 Final• WPIMS5228 Drinking Water Quality event Management Plan• WPIMS5274 Triggers notifications and actions for adverse WQ results• Quarterly Drinking Water Report to NSW Health Q3 2013-14 Final v2• Quarterly Drinking Water Report to NSW Health Q4 2013-14 Final v2• MPMS (Monitoring Process Management System) SA-M&R0005 versions 24 to 27• SWIRL: Water Quality incidents• Incident Reporting System (SWIRL).		
Summary of reasons for grade		
Full compliance was awarded for this sub-clause. The systems in place for capturing, storing and reporting information are sound. Reporting was delivered on time and in accordance with the Reporting Manual for Sydney Water Corporation June 2013, supported by these systems.		
Discussion and notes		
<p>Consideration was given to:</p> <ul style="list-style-type: none">• How water quality data is stored and how it is analysed for the purpose of reporting• How exception water quality results flagged and the quality system checks within the records system• Documenting remedial actions for these exceptions• What is the process for documenting remedial action for exceptions• Incidents or emergencies requiring immediate reporting. <p>All procedures for sampling and water quality testing are documented and controlled via the BMIS Document Control database is the Lotus Notes. These procedures and processes are NATA accredited. Sydney Water's Monitoring Process Management System (MPMS) is also quality systems accredited.</p> <p>The Sydney Water IICATS system has alarm set points based on action triggers and CCPs. Alarms are monitored 24/7 by the Systems Operation Centre and these are captured for reporting purposes.</p> <p>Electronic storage of on-line RW quality, equipment status etc, and plant grab sample results are stored via the plant SCADA and IICATS telemetry systems. Grab sample results taken under the Annual Monitoring Plan and analysed via the SW NATA accredited laboratory are stored in monitoring databases for the purposes of review and monitoring.</p>		

Details of the extent and nature of any exception from the health guideline values and aesthetic that have been agreed with NSW Health and an analysis of the risk to public health posed were provided as part of the quarterly and annual reports to NSW Health and IPART, with database systems supporting this action.

Incidents and follow up actions are captured in the Incident Reporting (SWIRL) website and this facilitated a summary is included in quarterly reports as per the Drinking Water Quality Incident Management SOP (WPIMS5228). This system is accessed by NSW Health further supporting timely reporting and transparency. All RW quality exceptions were noted as reported in the Quarterly and Annual reports to NSW Health which include:

- Test results and date or period of exception from these guidelines of the health and environmental parameters for which compliance is required
- Explanation of the causes of the exception and any action taken to rectify the exception and prevent it re-occurring.

Quality check utilised in record system includes "Document Control database" in BMIS.

Recommendation

There are no recommendations for this sub-clause.

Opportunities for improvement

There are no opportunities for improvement for this sub-clause.

Appendix G – Detailed audit findings – Request for information and access

Detailed Audit Findings		Indicators
Sub-Clause	Requirement	Compliance Grade
10.2	Request for information and access – NSW Health	Full
Risk		Target for full compliance
Non-compliance would indicate that Sydney Water is not operating in a transparent manner and in accordance with the MOU with NSW Health.		Sydney Water must comply with any request by NSW Health for information relating to water quality. The information provided under this clause must be in the manner and form specified by NSW Health.
Evidence sighted		
Letter NSW Health 27/8/14, Dr Smith (SWC Audit 1314).		
Summary of reasons for grade		
Full compliance was awarded for this sub-clause. The evidence provided indicates that NSW Health is satisfied that Sydney Water has met its obligations under the Operating Licence and MoU.		
Discussion and notes		
There were no requests by NSW Health for information relating to water quality. Through the letter evidence and follow up phone discussion that it was assessed that Sydney Water has met its obligations under the Operating Licence and MoU, to the satisfaction of NSW Health.		
Recommendation		
There are no recommendations for this sub-clause.		
Opportunities for improvement		
There are no opportunities for improvement for this sub-clause.		

Appendix H – Detailed audit findings – Memoranda of understanding

Detailed Audit Findings		MOU
Sub-Clause	Requirement	Compliance Grade
11a	<p>In accordance with the Act, Sydney Water must maintain a memorandum of understanding with each of the following:</p> <ol style="list-style-type: none"> 1. The Water Administration Ministerial Corporation (WAMC) 2. NSW Health 3. DECCW. <p>for the term of the Licence.</p>	Full
Risk		Target for full compliance
Collaboration with key stakeholders mitigates risk to public health from Sydney Water's operations.		Evidence of MOU currency and commitment.
Evidence sighted		
<ul style="list-style-type: none"> • Folio of Progress MoU NSW Health • Folio of Progress MoU WAMC • Minutes JOG 31 October 2013_final • Minutes JOG 17 February 2014_Final • Collaboration Agreement • DOC14 152841-01 Metro Infrastructure - Draft SWC & EPA MOU for Public Exhibition - 05-08-2014 • SWC_MoU_with Fair Trading FINAL_SIGNED • 140227_ADG_JOG Mtg • 140227_MIN_JOG Mtg_IF FINAL • 140516 Combined Papers_FINAL • 140529_DOC_JOG Mtg_Attach 1 - 2013-14 JOG work program_HN updates • 140529_JOG Minutes Final • 2013-14 JOG work program updated 140624 • Agenda_SLG 23 July 13_draft JB • Attachment 3-JOG work program update- 22 Aug 2013 • Current signed OEH MOU • Current signed RFS FRNSW MOU recycled water firefighting • File directory of OEH MOU • Item 2_Action list_SLG 30 Oct 2013 • JOG Agenda draft for 220813 • SLG minutes 23 July 2013_DRAFT • SLG minutes 30 Oct 2013_FINAL. 		
Summary of reasons for grade		
Appropriate and current MOU are maintained with the relevant entities. These are activated via the Joint Operational Group and Strategic Liaison Group meetings.		
Discussion and notes		
A MoU between NSW Health and Sydney Water has been in place since 11 November 1997 and the current version incorporates amendments made by agreement between the two agencies dated May 2012.		

A new WAMC MoU came into effect on 1 June 2011, replacing the previous MoU which commenced in 2007. Sydney Water initiated a review of the previous MoU in June 2010 to reflect departmental changes and remove unnecessary and cumbersome requirements for meetings between CEOs and senior officers. (Such meetings duplicate liaison between Sydney Water and the Office of Water in other forums.) A revised draft MoU was released for public comment on 6 April 2011 for 30 days, as required by section 36 of the Sydney Water Act. No comments were received.

Under 9.2 of Attachment A of MoU: WAMC, Sydney Water And NSW Office of Water are required to review the Operating Protocol annually. Sydney Water has not reviewed the Protocol and endeavour to organise a review by December 2014. The MoU highlights the processes around Attachment A:

6.1.2 The parties may liaise and keep each other informed about water management issues, including but not limited to: f) the Western Sydney Recycled Water Initiative: an operating protocol, Rules and administrative arrangements for the release of recycled water to South Creek and Eastern Creek (Attachment A).

The current signed OEH MOU outlines the cooperative structures and processes between the entities including the Strategic Liaison Group and the Joint Operating Group. The November 2011 MOU replaced the June 2006 version.

The functions of DECCW have now been split into two agencies: the Environment Protection Authority (EPA) and Office of Environment and Heritage (OEH). Sydney Water's activities related to discharges to air, water and land are regulated and/or licensed by the Environmental Protection Authority (EPA). The MoU provides a framework for the relationship between Sydney Water and the EPA and OEH and facilitates data exchange, strategic and operational liaison, licence setting, dispute resolution and so on. The Operating Licence requires the MoU to recognise the EPA (previously DECCW) as the environmental regulator of NSW and commits Sydney Water to environmental obligations. The EPA MOU is almost ready to sign and needs to go on public exhibition.

Recommendation

There are no recommendations in relation to this sub-clause.

Opportunities for improvement

There are no opportunities for improvement in relation to this sub-clause.

Detailed Audit Findings		MOU
Sub-Clause	Requirement	Compliance Grade
11b	<p>The purpose of a memorandum of understanding is to form the basis for co-operative relationships between the parties to the memorandum. In particular:</p> <ol style="list-style-type: none"> 1. The memorandum of understanding with NSW Health is to recognise the role of NSW Health in providing advice to the Government of NSW in relation to: <ol style="list-style-type: none"> a. The management of the supply of Drinking Water to ensure it is safe to drink b. The management of the supply of Recycled Water in respect of its fitness for purpose and effects on health. 2. The memorandum of understanding with DECCW is to recognise DECCW as the environmental regulator of the State and to commit Sydney Water to environmental obligations; and 3. The memorandum of understanding with the WAMC is to recognise the role of WAMC in regulating water access, use and management and Sydney Water's right to use water vested in the WAMC. 	Full
Risk		Target for full compliance
Collaboration with key stakeholders mitigates risk to public health from Sydney Water's operations.		Evidence of MOU currency and commitment.
Evidence sighted		
<ul style="list-style-type: none"> • Folio of Progress MoU NSW Health • Folio of Progress MoU WAMC • Minutes JOG 31 October 2013_final • Minutes JOG 17 February 2014_Final • COLLABORATION AGREEMENT • 140227_ADG_JOG Mtg • 140227_MIN_JOG Mtg_IF FINAL • 140516 Combined Papers_FINAL • 140529_DOC_JOG Mtg_Attach 1 - 2013-14 JOG work program_HN updates • 140529_JOG Minutes Final • 2013-14 JOG work program updated 140624 • Agenda_SLG 23 July 13_draft JB • Attachment 3-JOG work program update- 22 Aug 2013 • Current signed OEH MOU • Current signed RFS FRNSW MOU recycled water firefighting • File directory of OEH MOU • JOG Agenda draft for 220813 • SLG minutes 23 July 2013_DRAFT • SLG minutes 30 Oct 2013_FINAL. 		

Summary of reasons for grade

Appropriate and current MOU are maintained with the relevant entities. These are activated via the Joint Operational Group and Strategic Liaison Group meetings.

Discussion and notes

A MoU between NSW Health and Sydney Water has been in place since 11 November 1997 and the current version incorporates amendments made by agreement between the two agencies dated May 2012. The MoU includes clauses on:

1. Interpretation
2. Regulatory agency
3. Term
4. Liaison between the Corporation and the Department
5. Dispute resolution
6. Amendment
7. The Corporation's roles and responsibilities
8. The Department's roles and responsibilities
9. Emerging public health issues related to water
10. Events of public health significance
11. Data exchange
12. Public education and information.

The Drinking Water Quality Event Management Procedure is a key document which outlines the agencies processes for communication and managing drinking water quality incidents.

Regular meetings are held between NSW Health and SW including with the Strategic Liaison Group (SLG) and Joint Operations Group (JOG) throughout the year. Incident management policies, plans and procedures are developed and exercises conducted jointly.

For the WAMC, a new MoU came into effect on 1 June 2011, replacing the previous MoU which commenced in 2007. Sydney Water initiated a review of the previous MoU in June 2010 to reflect departmental changes and remove unnecessary and cumbersome requirements for meetings between CEOs and senior officers. (Such meetings duplicate liaison between Sydney Water and the Office of Water in other forums.). A revised draft MoU was released for public comment on 6 April 2011 for 30 days, as required by section 36 of the Sydney Water Act. No comments were received.

The MoU sets out arrangements for liaison between the parties on the following water management issues:

- Implementation of the Greater Metropolitan Region Water Sharing Plans
- Conversion of Sydney Water's Water Management Licence under the Water Act 1912, to licences and approvals under the Water Management Act 2000
- The management agreement between Sydney Water, Warringah Council, Manly Hydraulics Laboratory and the University of NSW regarding Manly Dam
- Any future licence requirements for the Botany Wetlands and Busby's Bore
- Drought or low flow triggers for North Richmond extractions
- The Western Sydney Recycled Water Initiative: an operating protocol, Rules and administrative arrangements for the release of treated water to South Creek and Eastern Creek is an attachment to the MoU
- Stormwater harvesting and recovery
- Continual improvement in licence conditions and the licence management cycle.

The new MoU replaces the requirements for regular meetings between the CEOs and senior officers of Sydney Water and the Office of Water with requirements to "liaise as appropriate" and "keep each other informed about water management issues".

Sydney Water does involve NOW in the annual meetings as per our management agreement with Warringah Council, Manly Hydraulics Laboratory and University of NSW regarding Manly Dam.

There are two Water Sharing Plans in force in the Sydney region: the Water Sharing Plan for the Greater Metropolitan Region Unregulated River Water Sources 2011 and the Water Sharing Plan for the Greater Metropolitan Region Groundwater Sources 2011. Both came into effect on 1 July 2011.

The Water Act 1912 came into force at the turn of the last century and represented a different era in water management in NSW. This Act is being progressively phased out and replaced by the Water Management Act 2000. The Water Management Act comes into effect in a catchment when a Water Sharing Plan is made for that area. The Greater Metropolitan Region Water Sharing Plans came into effect on 1 July 2011. Alongside this change, the Water Management (General) Regulation 2011 commenced on 1 September 2011. This superseded two former Regulations (The Water Management General Regulation 2004 and the Water Management (Water Supply Authorities) Regulation 2004). It covers a range of matters relating to water users such as licences and approvals, management plans, fees and penalties.

New Access Licences and Works approvals were issued to Sydney Water in May 2013, replacing the Part 9 Water Management Licence issued under the Water Act 1912. This regulation imposes penalties for offences under the Water Management Act 2000.

The new licences and Works Approvals were issued to Sydney Water in May 2013. The annual compliance report for 2013-2014 will be submitted to NOW by November 2014. Previously, Sydney Water requested clarification on the assessment of compliance against Condition 4 of the North Richmond Water Access Licence. The Flow classification data was not available from NOW to assess compliance. This has been discussed with NOW and Sydney Water will work with NOW to resolve this issue.

Recommendation

There are no recommendations in relation to this sub-clause.

Opportunities for improvement

There are no opportunities for improvement in relation to this sub-clause.

Detailed Audit Findings		MOU
Sub-Clause	Requirement	Compliance Grade
11c	Clause 11(a) does not limit the persons or regulatory agencies with whom Sydney Water may have a memorandum of understanding.	Full
Risk		Target for full compliance
Collaboration with key stakeholders mitigates risk to public health from Sydney Water's operations.		Evidence of MOU currency and commitment with any other agency.
Evidence sighted		
<ul style="list-style-type: none"> • COLLABORATION AGREEMENT with Randwick City Council • SWC_MoU_with Fair Trading FINAL_SIGNED • Current signed RFS FRNSW MOU recycled water firefighting. 		
Summary of reasons for grade		
Appropriate and current MOU are maintained with other relevant entities.		
Discussion and notes		
<p>COLLABORATION AGREEMENT with Randwick City Council, Sets out the relationship basis to collaborate and cooperate in relation to a joint project for the research and development of a food waste processing facility at Malabar WWTP.</p> <p>SWC_MoU_with Fair Trading FINAL_SIGNED; sets out the terms of a cooperative relationship establishing their respective roles generally associated with Fair Trading which regulates the Plumbing and Drainage Act 2011.</p> <p>Current signed RFS FRNSW MOU recycled water firefighting; sets out the use of recycled water from agreed schemes during firefighting related operational and training activities if appropriate. It considers the AGWR.</p>		
Recommendation		
There are no recommendations in relation to this sub-clause.		
Opportunities for improvement		
There are no opportunities for improvement in relation to this sub-clause.		

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133 Castlereagh St Sydney NSW 2000

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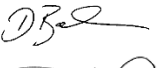
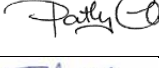

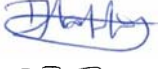
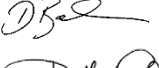
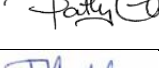


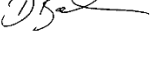




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Document Status

Rev No.	Author	Reviewer		Approved for Issue		
		Name	Signature	Name	Signature	Date
0	T. Flapper D. Baker A. Wijeratne I. McKinnon G. Leslie P. Chier	T. Flapper D. Baker P. Chier	  	T. Flapper		26/09/2014
1	T. Flapper D. Baker A. Wijeratne I. McKinnon G. Leslie P. Chier	T. Flapper D. Baker P. Chier	  	T. Flapper		31/10/2014
2	T. Flapper D. Baker A. Wijeratne I. McKinnon G. Leslie P. Chier	T. Flapper D. Baker	 	T. Flapper		24/11/2014
3	T. Flapper D. Baker A. Wijeratne I. McKinnon G. Leslie P. Chier	T. Flapper D. Baker	 	T. Flapper		26/11/2014

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D | Sydney Water's statement of compliance

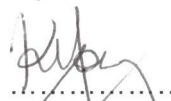
Statement of Compliance 2014
For 2013-14
Submitted by Sydney Water Corporation
ABN: 49 776 225 038

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

Sydney Water reports as follows:

1. This statement documents compliance during 2013-14 with all obligations to which Sydney Water is subject by virtue of its Operating Licence.
2. This report has been prepared by Sydney Water with all due care and skill to the best of our knowledge of conditions to which it is subject under the Sydney Water's Operating Licence and Reporting Manual.
3. Schedule A provides information on all obligations with which Sydney Water did not comply during 2013-14.
4. Other than the information provided in Schedule A, Sydney Water has complied with all conditions to which it is subject.
5. The compliance reports have been approved by the Managing Director and the Chairman of the Board of Directors of Sydney Water.

DATE: 27/8/14

Signed: 
Name: Kevin Young
Designation: Managing Director

DATE: 27/8/14

Signed: 
Name: Bruce Morgan
Designation: Chairman