



Independent Pricing and Regulatory Tribunal

Sydney Water Corporation Reporting Manual

Water – Reporting Manual
July 2015

Amendment Record

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Contents

1	Introduction	1
1.1	Purpose	1
1.2	Definitions and interpretation	1
1.3	Structure of this Reporting Manual	2
1.4	Changing this Reporting Manual	2
1.5	When should the information be reported?	2
1.6	How should the information be reported?	3
2	Water quality	8
2.1	Periodic reporting	8
2.2	Annual reporting	10
2.3	Intermittent reporting	12
2.4	Report on review of public reporting with respect to water quality	12
2.5	Publicly available documents	12
3	Water quantity	13
3.1	Periodic reporting	13
3.2	Annual reporting	13
3.3	Intermittent reporting	15
3.4	Publicly available documents	15
4	Assets	16
4.1	Periodic reporting	16
4.2	Annual reporting	16
4.3	Intermittent reporting	17
4.4	Publicly available documents	18
5	Customers and Consumers	19
5.1	Periodic reporting	19
5.2	Annual reporting	19
5.3	Intermittent reporting	19
5.4	Publicly available documents	19
6	Environment – indicators and management	21
6.1	Periodic reporting	21
6.2	Annual reporting	21
6.3	Intermittent reporting	22
6.4	Publicly available documents	22

7	Quality management	23
7.1	Periodic reporting	23
7.2	Annual reporting	23
7.3	Intermittent reporting	24
7.4	Publicly available documents	24
8	Performance monitoring	25
8.1	Periodic reporting	25
8.2	Annual reporting	25
8.3	Intermittent reporting	26
8.4	Publicly available documents	26
9	Other Reporting	27
9.1	Audit recommendations	27
9.2	Statement of compliance	27
	Appendices	29
A	Timeline for reporting	31
B	System Performance Standards and Water Conservation Targets	32
C	IPART performance indicators - infrastructure	34
D	IPART performance indicators - environment	40
E	IPART performance indicators - customers	44
F	Drinking Water health and aesthetic water characteristics and raw water operational monitoring characteristics	49

1 | Introduction

The Independent Pricing and Regulatory Tribunal of New South Wales (IPART) is responsible for monitoring and reporting on Sydney Water Corporation's (Sydney Water) compliance with its Operating Licence (Licence).

1.1 Purpose

The Licence contains a number of reporting obligations with which Sydney Water must comply. This Reporting Manual outlines all of Sydney Water's reporting requirements under the Licence and, with respect to those requirements, identifies when, what information and how Sydney Water is to report.

This Reporting Manual does not reproduce Sydney Water's obligations that are set out in the Licence. Therefore, it is necessary for Sydney Water to refer to the Licence and to any legislation, statutory instrument or document referred to in the Licence.

The Licence also contains a condition requiring Sydney Water to comply with any reporting obligations set out in this Reporting Manual.¹ Therefore, Sydney Water must comply with any reporting requirements that are set out in this Reporting Manual, which are additional to those set out in the Licence.

1.2 Definitions and interpretation

Terms that are defined in the Licence have the same meaning in this Reporting Manual, unless the terms are separately defined in this Reporting Manual.

The interpretation provisions in the Licence apply to this Reporting Manual, with all references to the Licence in those provisions taken to be references to this Reporting Manual.

[Note: As at the Commencement Date, the interpretation provisions are contained in clause 12.2 of the Licence.]

¹ Clause 8.2.1 of the Licence.

1.3 Structure of this Reporting Manual

This Reporting Manual is structured as follows:

- ▼ Section 1 details how and when Sydney Water is to report
- ▼ Sections 2 to 8 outline the specific reporting requirements under each clause of the Licence, and
- ▼ Section 9 outlines other general reporting obligations with which Sydney Water must comply.

1.4 Changing this Reporting Manual

We may change this Reporting Manual at any time. In particular, we may change this Reporting Manual to:

- ▼ reflect changes in the applicable law, including the Act
- ▼ include additional reporting obligations where appropriate
- ▼ include references to new Licence obligations
- ▼ delete references to Licence obligations that no longer apply
- ▼ amend the information that Sydney Water must provide to IPART and to NSW Health (as the case may be), and
- ▼ improve the reporting process.

Before we change this Reporting Manual significantly, we will consult with Sydney Water and other interested stakeholders. We will then notify Sydney Water and stakeholders of the changes to this Reporting Manual and the start date for any new reporting arrangements. In determining the start date of significant changes, we will make sure there is enough time for Sydney Water to implement new arrangements.

1.5 When should the information be reported?

Sydney Water's reporting schedule is summarised in Table 1.1. We have grouped reporting requirements into:

- ▼ periodic (ie, monthly and quarterly) reporting
- ▼ annual reporting, and
- ▼ intermittent reporting.

Appendix A of this Reporting Manual provides a summary timeline for Sydney Water's reporting requirements under the Licence.

1.6 How should the information be reported?

1.6.1 Reporting to IPART

Sydney Water should report the required information to IPART in a clear and concise report. Where this Reporting Manual requires information on more than one area (eg, water quality and environment) at the same time, Sydney Water is encouraged to provide the information in a single report. However, Sydney Water may choose to report the information in separate reports.

Any report must be approved by Sydney Water's Managing Director.

Sydney Water must lodge an electronic version of each report with IPART via email with a hard copy sent by mail. When lodging a report, Sydney Water must also provide the name and contact details (phone and email) of the primary contact at Sydney Water with whom IPART may liaise when assessing compliance and an alternative contact for those times when the primary contact is unavailable.

Electronic reports must be emailed to: compliance@ipart.nsw.gov.au

Hardcopy reports must be sent to:

The Chief Executive Officer
Independent Pricing and Regulatory Tribunal of New South Wales
PO Box K35
Haymarket Post Shop NSW 1240

1.6.2 Reporting to NSW Health

Sydney Water must provide reports to NSW Health as outlined in this Reporting Manual.

Sydney Water must lodge an electronic version of any such report with NSW Health via email. When lodging a report with NSW Health, Sydney Water must also provide the name and contact details (phone and email) of the primary contact at Sydney Water with whom NSW Health may liaise when assessing compliance, and an alternative contact for those times when the primary contact is unavailable.

Electronic reports must be emailed to: waterqual@doh.health.nsw.gov.au or to the last email address notified by NSW Health to Sydney Water.

Reporting schedule	Water quality	Water Quantity	Assets	Customer and Consumers	Environment	Quality Management	Performance Monitoring
	Section 2 of Reporting Manual	Section 3 of Reporting Manual	Section 4 of Reporting Manual	Section 5 of Reporting Manual	Section 6 of Reporting Manual	Section 7 of Reporting Manual	Section 8 of Reporting Manual
Annual	Compliance and performance report – 1 September following the end of the relevant financial year (or by a later date agreed to by IPART)	Water Conservation Report – 1 September following the end of the relevant financial year (or by a later date agreed to by IPART)	Compliance and performance report – 1 September following the end of the relevant financial year (or by a later date agreed to by IPART)	None	Compliance and performance report – 1 October following the end of the relevant financial year (or by a later date agreed to by IPART)	Compliance and performance report – 1 September following the end of the relevant financial year (or by a later date agreed to by IPART)	<p>Compliance and performance report (with environmental indicators) – 1 October following the end of the relevant financial year (or by a later date agreed to by IPART)</p> <p>Compliance and performance report (without environmental indicators) – 1 September following the end of the relevant financial year (or by a later date agreed to by IPART)</p>

Reporting schedule	Water quality	Water Quantity	Assets	Customer and Consumers	Environment	Quality Management	Performance Monitoring
	Section 2 of Reporting Manual	Section 3 of Reporting Manual	Section 4 of Reporting Manual	Section 5 of Reporting Manual	Section 6 of Reporting Manual	Section 7 of Reporting Manual	Section 8 of Reporting Manual
			Response time to breaks and leaks report – 1 September following the end of the relevant financial year (or by a later date agreed to by IPART)				
	Report on Audit recommendations by 31 March (or by another date agreed to by IPART) (Section 9.1 of Reporting Manual)						
Intermittent	Incident notification - Immediate	Report outlining approach and principles to developing the Methodology – 1 November 2015	State of the Assets report – 1 September 2015, 2017 and 2019 following the end of the relevant financial year (or by a later date agreed to by IPART)	None	Significant changes to the Environment Management System - Prior to implementing the changes]	Significant changes to the Quality Management System - Prior to implementing the changes	None

Reporting schedule	Water quality	Water Quantity	Assets	Customer and Consumers	Environment	Quality Management	Performance Monitoring
	Section 2 of Reporting Manual	Section 3 of Reporting Manual	Section 4 of Reporting Manual	Section 5 of Reporting Manual	Section 6 of Reporting Manual	Section 7 of Reporting Manual	Section 8 of Reporting Manual
	Significant changes to Drinking Water and Recycled Water Quality Management Systems – Prior to implementing the changes		Significant changes to Asset Management Framework – Prior to implementing the changes				
	Report on review of public reporting with respect to water quality – By 31 December 2016		Significant changes to the Asset Management System – Prior to implementing the changes				
		Significant changes to economic level of Water conservation methodology – Prior to implementing the changes					

2 | Water quality

This section relates to Sydney Water's reporting obligations under clause 2 of the Licence.

2.1 Periodic reporting

2.1.1 Public reporting

Sydney Water must prepare, for each quarter, a report (the **Quarterly Water Quality Monitoring Report**) on Sydney Water's performance against all health and aesthetic water characteristics and raw water operational characteristics identified in Appendix F.

Sydney Water must publish the Quarterly Water Quality Monitoring Report on its website within 4 weeks following the end of the relevant quarter.

The Quarterly Water Quality Monitoring Report must include:

- ▼ the details of the delivery system
- ▼ the number of samples in the period, and
- ▼ quarterly performance and rolling 12-month performance against health guideline values and aesthetic guideline values as per Appendix G. This does not apply to raw water operational monitoring characteristics (which may be compared with operational targets or guidelines (eg, cyanobacteria)).

[Note: Under clauses 2.1.1 and 2.1.2 of the Licence, Sydney Water must maintain and implement a Drinking Water Quality Management System, ie, a Management System that is consistent with the Australian Drinking Water Guidelines, except to the extent that NSW Health specifies otherwise. The Australian Drinking Water Guidelines provide a framework for the management of Drinking Water supplies (ie, Framework for Management of Drinking Water Quality). One of the central aspects of the framework is the use of monitoring to confirm the effectiveness of the preventive measures and barriers to contamination and to enhance Sydney Water's understanding of the performance of the Drinking Water network.]

To comply with the Australian Drinking Water Guidelines, the Drinking Water Quality Management System must include a monitoring program. This section 2.1.1 requires Sydney Water to report on aspects of its monitoring of Drinking Water quality to Customers.]

2.1.2 NSW Health reporting

Monthly

Sydney Water must prepare, for each month, a report on Sydney Water's fluoride monitoring. Sydney Water must submit the report to NSW Health within 2 weeks following the end of the relevant month.

The report must contain, for the relevant month, the information required by the Code of Practice for Fluoridation of Public Water Supplies.

[Note: Sydney Water must report on its fluoride monitoring on the basis that: (a) its performance programs must comply with monitoring requirements in the Code of Practice for the Fluoridation of Public Water Supplies, and (b) NSW Health has specified (as it is authorised to do under clause 2.1.1 of the Licence) that the monitoring and reporting of fluoridation in the Drinking Water Quality Management System must be consistent with the Code of Practice for the Fluoridation of Public Water Supplies.]

Quarterly

Sydney Water must prepare, for each quarter starting from 1 July, a report on Sydney Water's monitoring of Drinking Water and Recycled Water. Sydney Water must submit the report to NSW Health within 6 weeks following the end of the relevant quarter.

The report must include the following information for the relevant quarter:

- ▼ details of any monitoring test result that does not comply with:
 - the relevant health or aesthetic guideline value for each Drinking Water quality characteristic (each as specified in the monitoring program developed as part of the Drinking Water Quality Management System), and
 - the relevant health or aesthetic guideline value for each Recycled Water quality characteristic (each as specified in the monitoring program developed as part of the Recycled Water Quality Management System), (each, an **Exception**), and
- ▼ the relevant critical control point breached and the action taken.

The details should include:

- ▼ test results and the date or period of non-compliance with the relevant health or aesthetic guideline values
- ▼ an appraisal of the Exception, including discussion of the extent and nature of the Exception and an analysis of the risks posed by the Exception, and
- ▼ an explanation of the causes of the Exception and any action taken to rectify the Exception and prevent it from re-occurring.

If there are no Exceptions in the quarter, the report should state that to be the case.

*[Note: As explained in the note to section 2.1.1 above, Sydney Water must maintain and implement a Drinking Water Quality Management System in accordance with the Licence. Sydney Water must also maintain and implement a Recycled Water Quality Management System, being a Management System that is consistent with the Australian Guidelines for Water Recycling, in accordance with the Licence (clauses 2.2.1 and 2.2.2 of the Licence). The Australian Guidelines for Water Recycling provide a framework for good management of Recycled Water quality (ie, the Framework for Management of Recycled Water Quality and Use). To comply with the Licence, the Drinking Water Quality Management System and the Recycled Water Quality Management System (each, a **Water Quality Management System**) must each include a monitoring program. This section 2.1.2 requires Sydney Water to report on aspects of the quality of Drinking Water and Recycled Water under such monitoring programs.]*

2.2 Annual reporting

2.2.1 Compliance and performance reporting

Sydney Water must prepare, for each financial year, compliance and performance report on its management of the quality of Drinking Water and Recycled Water. Sydney Water must submit the compliance and performance report to IPART and NSW Health by **1 September** following the end of the relevant financial year, or at a later date agreed to by IPART.

The compliance and performance report must include:

- ▼ the Drinking Water and Recycled Water quality management activities and programs completed by Sydney Water in the financial year to meet its water quality objectives, including the results and outcomes from those activities and programs
- ▼ the Drinking Water and Recycled Water quality management activities and programs proposed to be undertaken by Sydney Water to meet its water quality objectives, including the expected outcomes, scope and timetable for completion

- ▼ an assessment of the performance of critical control points (as identified by the Water Quality Management Systems) over the long-term in accordance with the Australian Drinking Water Guidelines and the Australian Guidelines for Water Recycling (each, a **Guideline**) (as the case may be)
- ▼ an assessment of the review and continual improvement conducted over the previous 12-month period (as identified by the Water Quality Management Systems) in accordance with Element 12 of the relevant Guideline
- ▼ any proposed significant changes to a Water Quality Management System, and
- ▼ any non-compliance with a Water Quality Management System and the action/s taken to resolve those non-compliances.

[Note: As explained in the notes to section 2.1.1 and 2.1.2 above, Sydney Water is required, under the Licence, to maintain and implement the Water Quality Management Systems in accordance with the Licence. This section 2.2 requires Sydney Water to report on how it complies with those Licence requirements.]

The water quality objectives referred to in this section 2.2.1 are objectives Sydney Water would need to identify for the Water Quality Management Systems. Sydney Water's water quality objectives may be either:

- ▼ *the broad objectives of the Water Quality Management Systems (eg, to ensure consistent management of water quality). These objectives may cover all 12 elements of the Framework for Management of Drinking Water Quality or the Framework for Management of Recycled Water Quality and Use, such as monitoring, operation, maintenance, training, community consultation and research programs, or*
- ▼ *the target water quality criteria (ie, operational water quality objectives for each operational water quality characteristic included in the monitoring program developed as part of the Water Quality Management Systems eg, Escherichia coli numbers in raw water or sewage).*

The activities and programs set out in the Water Quality Management Systems, which are referred to in this section 2.2.1, are those that Sydney Water would identify in its risk assessments as actions or programs that are required to manage or maintain a risk below a tolerable level. Undertaking a risk assessment is part of the Framework for the Management of Drinking Water Quality and the Framework for the Management of Recycled Water Quality, with which the relevant Water Quality Management System must be consistent.]

2.3 Intermittent reporting

2.3.1 Incident and emergency reporting – Drinking Water and Recycled Water

Sydney Water must immediately report to NSW Health any incident in the delivery of its Services which may adversely affect public health.

Sydney Water must report the “incident” (as defined in a Water Quality Management System) in accordance with the reporting protocols developed in that necessary Water Quality Management System.

[Note: To comply with the Licence, each Water Quality Management System must define the word “incident” include protocols for external communications and reporting of any incident. This section 2.3.1 requires Sydney Water to report any incident in accordance with these protocols.]

2.3.2 Notification of significant changes to Water Quality Management Systems

Sydney Water must notify IPART and NSW Health of any significant changes that it proposes to make to a Water Quality Management System prior to implementing the changes.

2.4 Report on review of public reporting with respect to water quality

Sydney Water must, by **31 December 2016**:

- ▼ complete a review of its public reporting on water quality (in consultation with its Customer Council and NSW Health), and
- ▼ submit to IPART a report detailing the outcomes of the review.

[Note: This requirement is imposed under clause 2.1.5 of the Licence.]

2.5 Publicly available documents

Sydney Water must make the Quarterly Water Quality Monitoring Report available to any person, free of charge:

- ▼ on its website for downloading, and
- ▼ upon request made to the Contact Centre.

3 | Water quantity

This section relates to Sydney Water's reporting obligations under clause 3 of the Licence.

3.1 Periodic reporting

There is no periodic reporting requirement for the purpose of clause 3 of the Licence.

3.2 Annual reporting

3.2.1 Water Conservation Report

Sydney Water must prepare, for each financial year, a report with respect to water conservation (**Water Conservation Report**). Sydney Water must submit the Water Conservation Report to IPART by **1 September** following the end of the relevant financial year, or by a later date agreed to by IPART.

Until the Methodology is approved by IPART (under clause 3.2.3 of the Licence), the Water Conservation Report must provide information, in respect of the financial year to which the report relates, on:

- ▼ strategies, programs and projects relating to water conservation undertaken by Sydney Water
- ▼ steps that Sydney Water has taken to promote, foster and encourage the efficient use of water and the production and use of recycled water, where financially viable, and
- ▼ Sydney Water's performance against:
 - the water usage target and water leakage target, and
 - system performance standards WC1 and WC2 set out in Appendix B to this Reporting Manual.

Once the Methodology is approved by IPART (under clause 3.2.3 of the Licence), the Water Conservation Report must:

- ▼ include the elements of Sydney Water’s water conservation program for the previous financial year (or for the period the Methodology was approved if approved during that financial year) and for at least the next five financial years, including (but not limited to):
 - Sydney Water’s strategies, programs and projects relating to water leakage, recycled water and water efficiency
 - Sydney Water’s water conservation objectives, targets and timetables, and
 - The extent to which these elements accord with the economic level of water conservation activity and the Methodology
- ▼ describe and explain Sydney Water’s progress against each of the elements of its water conservation program for the previous financial year (or for the period the Methodology was approved if approved during that financial year), including any deviations from this program
- ▼ describe and explain any changes to Sydney Water’s water conservation program relative to the previous annual Water Conservation Report (where applicable)
- ▼ outline how Sydney Water’s water conservation program relates to the Metropolitan Water Plan and its progress against the Metropolitan Water Plan, and
- ▼ include information on the following measures for the previous financial year (or for the period the Methodology was approved if approved during that financial year), as well as earlier financial years (where applicable) of the Licence term:
 - the level of water leakage from Sydney Water’s Drinking Water supply system against the economic level of leakage for that financial year
 - the volume of water sourced from Recycled Water (in Megalitres), and
 - the quantity of Drinking Water drawn by Sydney Water from all sources, expressed in Gigalitres per year (aggregate), litres per person per day (weather corrected) and kilolitres per person per year (weather corrected).

*[Note: The first Water Conservation Report to be submitted to IPART by Sydney Water after IPART approves the Methodology (**First Report**) will likely be submitted shortly after such approval is given. In those circumstances, IPART: (a) does not expect that Sydney Water will have fully implemented all of the water conservation activities set out in the First Report in accordance with the Methodology, and (b) anticipates that the five year plan set out in the First Report may be subject to change as the Methodology becomes more established.*

The Water Conservation Report is to include information on any element of the water conservation program that may be identified as economically efficient by the Methodology but that Sydney Water has not implemented or is not proposing to implement.]

3.3 Intermittent reporting

3.3.1 Economic level of water conservation – Methodology

Sydney Water must prepare a report outlining Sydney Water's approach to, and principles for, developing the Methodology. Sydney Water must submit the report to IPART by **1 November 2015**.

3.3.2 Notification and approval of significant changes to economic level of water conservation methodology

Once the Methodology is approved by IPART (under clause 3.2.3 of the Licence), Sydney Water must:

- ▼ notify IPART of any significant changes that it proposes to make to the Methodology, and
- ▼ obtain IPART's consent to make any significant changes to the Methodology prior to implementing the changes.

3.4 Publicly available documents

Sydney Water must make the Water Conservation Report available to any person, free of charge:

- ▼ on its website for downloading, and
- ▼ upon request made to the Contact Centre.

4 | Assets

This section relates to Sydney Water's reporting obligations under clause 4 of the Licence.

4.1 Periodic reporting

There are no periodic reporting requirements for the purpose of clause 4 of the Licence.

4.2 Annual reporting

4.2.1 Compliance and performance

Sydney Water must prepare, for each financial year, a report with respect to Sydney Water's performance against the System Performance Standards. Sydney Water must submit the report to IPART by **1 September** following the end of the relevant financial year, or by a later date agreed to by IPART.

The report must include the following information:

- ▼ information regarding Sydney Water's compliance or non-compliance with the System Performance Standards specified in clause 4.2 of the Licence in accordance with the template in Appendix B of this Reporting Manual, and
- ▼ an explanation of how Sydney Water has met or failed to meet the System Performance Standards, which details:
 - major factors (both positive and negative) that have influenced Sydney Water's performance, including factors that are both within and beyond Sydney Water's control, and
 - reasons for any significant variation (both positive and negative) between Sydney Water's performance in the financial year and performance in prior years.

[Note: under clause of 4.2 of the Licence, Sydney Water is required to comply with the Water Pressure Standard, Water Continuity Standard and Wastewater Overflow Standard.]

4.2.2 Response time to breaks and leaks

Sydney Water must prepare a report, for each financial year, with respect to Sydney Water's performance against the response time indicators I9 to I12 set out in Appendix C of this Reporting Manual. Sydney Water must submit the report to IPART by **1 September** following the end of the relevant financial year, or by a later date agreed to by IPART.

The report is to contain the following information:

- ▼ an explanation of major factors (both positive and negative) that have influenced Sydney Water's performance, including factors that are both within and beyond Sydney Water's control, and
- ▼ reasons for any significant variation (both positive and negative) between Sydney Water's performance in the financial year and performance in prior financial years.

[Note: under clause of 4.3 of the Licence, Sydney Water is required to report on water main breaks and leaks in accordance with the Reporting Manual.]

4.3 Intermittent reporting

4.3.1 State of the Assets report

Sydney Water must prepare, for the financial year ending 30 June 2015, 30 June 2017 and 30 June 2019, a report on the state of each group of Assets managed by Sydney Water.

Sydney Water must submit the report to IPART by **1 September** following the end of the relevant financial year, or by a later date agreed to by IPART.

The report must include the following matters as at 1 July of the financial year:

- ▼ a description of each group of Assets managed by Sydney Water
- ▼ Sydney Water's assessment of the expected capability of the Assets to deliver the Services and to meet the existing obligations consistent with the Licence, the Customer Contract, and all applicable laws with which Sydney Water must comply
- ▼ Sydney Water's assessment of the major issues or constraints on current and future performance of the Assets
- ▼ the strategies and expected costs of future investment in Assets, and
- ▼ such other matters reasonably required by IPART.

4.3.2 Notification of significant changes to the Asset Management Framework

Until the Asset Management System is certified and implemented in accordance with clauses 4.1.2(a) and 4.1.4 of the Licence, Sydney Water must notify IPART of any significant changes that it proposes to make to the Asset Management Framework prior to implementing the changes. This obligation does not apply to changes to the Asset Management Framework that will assist in the transition of the Asset Management Framework to an Asset Management System.

4.3.3 Notification of significant changes to the Asset Management System

Once the Asset Management System is certified and implemented in accordance with clauses 4.1.2 and 4.1.4 of the Licence, Sydney Water must notify IPART of any significant changes that it proposes to make to the Asset Management System prior to implementing the changes.

4.4 Publicly available documents

Sydney Water must provide to IPART and make available to any person free of charge, on its website for downloading and upon request made to the Contact Centre, a copy of:

- ▼ a document setting out its process for responding to water main breaks and leaks, and
- ▼ the report on factors that influence the time taken by Sydney Water to stop the loss of water as measured from the time that Sydney Water receives the notification of a break or leak (as required under clause 4.2.2 of the Reporting Manual).

[Note: The process and decision making framework and performance indicators must relate to water main breaks and leaks in both the trunk and reticulation components of Sydney Water's Drinking Water supply system between water treatment plants and a Property.]

5 Customers and Consumers

This section relates to Sydney Water's reporting obligations under clause 5 of the Licence.

5.1 Periodic reporting

There is no periodic reporting requirement for the purpose of clause 5 of the Licence.

5.2 Annual reporting

There is no annual reporting requirement for the purpose of section 5 of the Licence.

5.3 Intermittent reporting

There is no intermittent reporting requirement for the purpose of section 5 of the Licence.

5.4 Publicly available documents

Sydney Water must make a copy of the:

- ▼ Customer Council Charter and minutes from proceedings of the Customer Council (as required under clause 5.5.6 of the Licence)
- ▼ Customer Contract, including any variations to it (as required under clause 5.1.2 of the Licence)
- ▼ pamphlet that explains the Customer Contract, including any variations made to it (as required under clause 5.2.3 of the Licence)
- ▼ explanation of Assistance Options for Payment Difficulties and Actions for Non-Payment (as required under clauses 5.4.3 and 5.4.4 of the Licence)
- ▼ information concerning internal Complaints handling, explaining how to make a Complaint and how Sydney Water will receive, respond to and resolve Complaints (as required under clause 5.6.4 of the Licence), and

- ▼ pamphlet that explains how the external disputes resolution scheme works and how it can be accessed (as required under clause 5.7.2(c) of the Licence),

available to any person, free of charge:

- ▼ on its website for downloading, and
- ▼ upon request made to the Contact Centre.

6 Environment – indicators and management

This section relates to Sydney Water’s reporting obligations under clause 6 of the Licence.

6.1 Periodic reporting

There is no periodic reporting requirement for the purpose of clause 6 of the Licence.

6.2 Annual reporting

6.2.1 Compliance and performance reporting

Sydney Water must prepare, for each financial year, a compliance and performance report on Sydney Water’s Environmental Management System. Sydney Water must submit the compliance and performance report to IPART by **1 October** following the end of the relevant financial year, or by a later date agreed to by IPART.

The compliance and performance report must include:

- ▼ a summary of the objectives and targets of the Environmental Management System
- ▼ the environmental management activities and programs completed by Sydney Water in the financial year to meet the objectives and targets of the Environmental Management System
- ▼ the results and outcomes from those activities and programs
- ▼ the environmental management activities and programs proposed to be undertaken by Sydney Water to meet the objectives and targets of the Environmental Management System in the future, including the timetable for completion
- ▼ any proposed significant changes to the Environmental Management System, and
- ▼ any non-conformances with the Environmental Management System and the actions taken to resolve those non-conformances.

[Note: Under clause 6.1.1 of the Licence, Sydney Water must maintain an Environmental Management System that is consistent with the standard specified in the Licence. The standard outlines the components of an Environmental Management System, which includes identifying and developing objectives and targets for the Environmental Management System. Clause 6.1.4 of the Licence requires Sydney Water to provide IPART with a report on the outputs of the Environmental Management System in accordance with this Reporting Manual. This section 6.2.1 requires Sydney Water to report on how it complies with the requirement under clause 6.1.4 of the Licence in accordance with this Reporting Manual. The environmental management activities and programs referred to in this section 6.2.1 are those that Sydney Water would need to undertake to achieve the objectives and targets of the Environmental Management System.]

6.3 Intermittent reporting

Sydney Water must report to IPART any significant changes that it proposes to make to the Environmental Management System prior to implementing the changes.

6.4 Publicly available documents

Sydney Water must make the compliance and performance report on the Environmental Management System (referred to in section 6.2.1 of this Reporting Manual) available to any person, free of charge:

- ▼ on its website for downloading, and
- ▼ upon request made to the Contact Centre.

7 | Quality management

This section relates to Sydney Water's reporting obligations under clause 7 of the Licence.

7.1 Periodic reporting

There is no periodic reporting requirement for the purpose of clause 7 of the Licence.

7.2 Annual reporting

Under clauses 7.1.1 to 7.1.3 of the Licence, Sydney Water must, by:

- ▼ 30 June 2017, develop; and
- ▼ 30 June 2018, have certified and fully implement,

a Quality Management System. The reporting obligations set out in this section only arise once the Quality Management System has been developed and certified in accordance with the Licence.

7.2.1 Compliance and performance reporting

Sydney Water must prepare, for each financial year, a compliance and performance report. Sydney Water must submit the compliance and performance report to IPART by **1 September** following the end of the relevant financial year, or by a later date agreed to by IPART.

The compliance and performance report must include:

- ▼ the quality management activities and programs completed by Sydney Water in the relevant financial year to meet the objectives of the Quality Management System
- ▼ the results and outcomes from those activities and programs
- ▼ the quality management activities and programs proposed to be undertaken by Sydney Water to meet objectives of the Quality Management System in the future, including the timetable for completion

- ▼ any proposed significant changes to the Quality Management System, and
- ▼ any non-conformances in the Quality Management System and the action taken to resolve those non-conformances.

[Note: Under clauses 7.1.1 to 7.1.3 of the Licence, Sydney Water must develop, have certified and implement a Quality Management System that is consistent with the standard specified in the Licence. This section 7.2.1 requires Sydney Water to report on how it complies with that Licence requirement. The objectives referred to in this section 7.2.1 are those that Sydney Water would need to identify for the Quality Management System. The quality management activities and programs referred to in this section 7.2.1 are those that Sydney Water would need to undertake to achieve the objectives of the Quality Management System.]

7.3 Intermittent reporting

Sydney Water must report to IPART any significant changes that it proposes to make to the Quality Management System prior to implementing the changes.

7.4 Publicly available documents

Sydney Water must make the compliance and performance report on the Quality Management System (referred to in section 7.2.1 of this Reporting Manual) available to any person free of charge:

- ▼ on its website for downloading, and
- ▼ upon request made to the Contact Centre.

8 Performance monitoring

This section relates to Sydney Water's reporting obligations under clause 8 of the Licence.

8.1 Periodic reporting

There is no periodic reporting requirement for the purpose of clause 8 of the Licence.

8.2 Annual reporting

8.2.1 Compliance and performance reporting

In addition to any annual reporting requirements referred to in other sections of this Reporting Manual:

- ▼ Sydney Water must prepare, for each financial year, a compliance and performance report on:
 - Sydney Water's performance against the performance indicators set out in Appendices C, D and E of this Reporting Manual for the relevant financial year, and
 - Sydney Water's analysis of any problems of a systemic nature arising from Sydney Water's performance against those performance indicators.

Sydney Water must include in the compliance and performance report information on its performance against National Water Initiative Performance Reporting Indicators (other than those that relate to environmental indicators).

[Note: The National Water Initiative Performance Indicators are outlined in the National Performance Frameworks: Urban performance reporting Indicators and definitions handbook.]

Sydney Water must submit the compliance and performance report to IPART by **1 September** following the end of the relevant financial year, or by a later date agreed to by IPART.

- ▼ Sydney Water must prepare, for each financial year, a separate compliance and performance report setting out Sydney Water's performance against the environmental indicators set out in Appendix E and National Water Initiative Performance Reporting Indicators that relate to the environment. Sydney Water must submit the report to IPART by **1 October** following the end of the relevant financial year, or by a later date agreed to by IPART.

[Note: Under clause 8.2 of the Licence, Sydney Water must comply with its reporting obligations in this Reporting Manual. This section 8.2.1 requires Sydney Water to report on its performance against performance indicators set out in this Reporting Manual.]

8.3 Intermittent reporting

There is no intermittent reporting requirement for the purpose of clause 8 of the Licence.

8.4 Publicly available documents

Sydney Water is not required to make documents or reports publicly available under this section 8 of this Reporting Manual.

[Note: IPART provides annual performance data on the public water utilities (including Sydney Water) on its website. Further, the Bureau of Meteorology prepares an annual National Performance Report with respect to all urban water utilities (including Sydney Water). This report is also publicly available.]

9 | Other Reporting

9.1 Audit recommendations

Sydney Water must report to IPART annually on the status of any audit recommendations identified in the most recent Operational Audit and outlined in IPART's audit report to the Minister.

Sydney Water must submit the audit recommendations status report to IPART by **31 March** each year, or by another date agreed to by IPART.

[Note: Under clause 8.1 of the Licence, IPART or an Auditor may undertake an Operational Audit. This section 9.1 requires Sydney Water to report on the status of implementing recommendations identified in an Operational Audit.]

9.2 Statement of compliance

IPART's Public Water Utilities Audit Guideline specifies the information that IPART requires for a statement of compliance.² Sydney Water's statement of compliance must be provided in accordance with IPART's Audit Guideline.

[Note: Under clause 8.1 of the Licence, IPART may undertake an Operational Audit on Sydney Water's compliance with the Licence. As part of the audit process, Sydney Water must provide a statement of compliance which identifies any non-compliance with the Licence of which Sydney Water is aware.]

² IPART, *Audit Guideline – Public Water Utilities*, July 2014, Appendix B.



Appendices

A Timeline for reporting

Table A.1 Timing of regular reporting under the Sydney Water Licence

Date/frequency	Report to	Required Report
Monthly	NSW Health	▼ Reporting on fluoride monitoring
Quarterly	Public	▼ Quarterly Water Quality Monitoring Report
Quarterly	NSW Health	▼ Exception reporting on Sydney Water's monitoring of Drinking Water and Recycled Water
Annually 31 March	IPART	▼ Audit recommendation status update
Annually 1 September	IPART	▼ Compliance and performance report on: <ul style="list-style-type: none"> – Management of the quality of Drinking Water and Recycled Water – Water conservation – Compliance with Water Pressure Standard, Water Continuity Standard and Wastewater Overflow Standard – Response time to breaks and leaks – Quality Management System – Performance indicators (Appendix C and E) – NWI indicators (except for environmental indicators)
Annually 1 October	IPART	▼ Compliance and performance report on Environmental Management System, environment performance indicators (Appendix D) and NWI environmental indicators

Table A.2 Timing of submission of other specific reports by Sydney Water

Date	Plan submitted to	Event
1 November 2015	IPART	Report on outlining approach and principles to developing its methodology for the determination of economic level of water conservation
31 December 2016	IPART	Report setting out the IPART approved methodology for the determination of economic level of water conservation
1 September 2015, 1 September 2017 and 1 September 2019	IPART	State of the Assets report
Immediately upon occurrence of incident	NSW Health	Incident water quality monitoring results

B System Performance Standards and Water Conservation Targets

The table in this appendix sets out the System Performance Standards that must be reported to IPART.

Important Note: The data in the following table must be accompanied by an explanation of the performance against the requirements in the Licence which details:

- ▼ major factors (both positive and negative) that have influenced this performance, including factors that are both within and beyond Sydney Water’s control and
- ▼ reasons for any variation (both positive and negative) between performance in the preceding financial year and prior 5 years.

Table B.1 System Performance Standards

Standard No.	Standard Definition
SPS 1	The Number of Properties that experience a Water Pressure Failure in the preceding financial year, as defined in the Licence.
SPS 2	The Number of Properties that experience an Unplanned Water Interruption that lasts for more than 5 continuous hours, in the preceding financial year, as defined in the Licence.
SPS 3	The Number of Properties that experience 3 or more Unplanned Water Interruptions that each lasts for more than 1 hour, in the preceding financial year as defined in the Licence.
SPS 4	The Number of Properties (other than Public Properties) that experience an Uncontrolled Wastewater Overflow in dry weather in the preceding financial year, as defined in the Licence.
SPS 5	The Number of Properties (other than Public Properties) that experience 3 or more Uncontrolled Wastewater Overflows in dry weather in the preceding financial year, as defined in the Licence.
WC 1	The quantity of potable water that Sydney Water has drawn from all sources in the preceding financial year (L/person/day); and The quantity of potable water that Sydney Water has drawn from all sources in the preceding financial year adjusted to account for the effects of weather on water usage (L/person/day).
WC 2	The amount of water leakage from the Drinking Water Supply System, averaged for the preceding financial year (ML per day).

C IPART performance indicators - infrastructure

The table in this appendix set out the infrastructure performance indicators required to be provided to IPART.

Table C1 Performance Indicators – infrastructure

IPART Indicator No.	Indicator	Definitions
I 1	The number of properties affected by an unplanned water interruption duration of more than 1 hour and less than or equal to 5 hours.	<p>Property means any real property to which either or both of the following conditions apply:</p> <ul style="list-style-type: none"> a. the real property is connected to the water utility’s drinking water supply system, to the water utility’s sewerage system or to the water utility’s recycled water system, and a charge for the services provided by one or more of those systems is levied on the owner of the real property b. the real property is within a declared stormwater drainage area for which the utility imposes a stormwater charge upon the owner of real property in that area.
I 2	Occurrence of water interruptions to affected properties (i.e. the number of properties experiencing 3 or more Planned or Unplanned water interruptions of more than one hour duration).	<p>Water Interruption means any event causing a total loss of water supply due to any cause. Water interruption excludes those caused by bursts or leaks in the service connection to internal plumbing or planned meter replacements. All interruptions not subject to notification caused by third parties or a power failure should be included. Exclude instances of reduced service levels due to, for example, low pressure. If a property experiences more than one interruption then it should be counted for each event. A water supply interruption, which causes loss of supply to 100 customers, is counted as 100 customer interruptions.</p>
I 3	Events leading to planned or unplanned water interruption where 250 or more properties experience an interruption of over 5 hrs duration.	<p>Planned water interruption – water interruption initiated by the water utility for which at least 24 hours notice has been given to the customer.</p> <p>Unplanned water interruption means an interruption in which an occupier of a property has not received at least 24 hours notification of the interruption or an interruption that has occurred prior to the expiry of any notice provided to an occupier advising of an interruption. It also includes outages where the duration exceeds that originally notified. In this case, the entire outage is classed as unplanned.</p>
I 4 (S)	The number of residential properties affected by planned water supply interruptions in peak hours (5am-9am and 5pm-11pm).	<p>Property as per I 1.</p> <p>Planned water interruption as per I 1</p> <p>Notes:</p> <ul style="list-style-type: none"> 1. For the purpose of this indicator, property refers to only residential properties. 2. Interruptions spanning any part of the peak period are to be included.

IPART Indicator No.	Indicator	Definitions
I 5	The number of properties in the water utility's drinking water supply network experiencing a water pressure failure which is occasional or recurrent, but not permanent.	<p>Property as per I 1.</p> <p>A property experiences a water pressure failure if a pressure of less than 15 metres head is experienced for a continuous period of 15 minutes or more measured at the point of connection of the Property and the water utility's water supply system, usually at the point of connection known as the "main tap". For the purpose of this indicator.</p> <p>(a) Where connected properties are in multiple occupancy, each separately billed or occupied part shall be counted as one connected property. Connected properties currently unoccupied shall be included.</p> <p>(b) A property is taken to have experienced a water pressure failure at each of the following times:</p> <p>(i) when a person notifies the water utility that the Property has experienced a water pressure failure and that water pressure failure is confirmed by the water utility, or</p> <p>(ii) when the water utility's systems identifies that the Property has experienced a water pressure failure.</p> <p>(c) 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 four days of its occurrence or from abnormal demand (such as demand during fire fighting).</p>

IPART Indicator No.	Indicator	Definitions
I 6	Number of High Priority sewage overflows per 100 km of sewer main responded to in a year.	<p>High Priority sewage overflow is an event assessed by the water utility as:</p> <ul style="list-style-type: none"> (a) a public health concern (b) likely to amount to significant damage to property (c) likely to have a significant environmental impact (d) an interruption of the sewerage service. <p>Medium Priority sewage overflow is an event assessed by the water utility as likely to amount to:</p>
I 7	Number of Medium Priority sewage overflows per 100 km of sewer main responded to in a year.	<ul style="list-style-type: none"> (a) minor property damage (b) minor environmental impact (including unpleasant odours) not posing a significant health risk. <p>The utility has defined problem codes of 'sewerage surcharge', 'plumber confirmed choke' or 'internal surcharge'. The number of events to be used is the number recorded under these codes determined to be priority High or Medium jobs.</p> <p>Note: High Priority is equivalent to a Priority 6 for Sydney Water or Priority 1 for Hunter Water Corporation. Medium Priority is equivalent to a Priority 5 for Sydney Water or Priority 2 for Hunter Water Corporation.</p>
I 8	Number of residential customers' dwellings affected by sewer spills not contained within 1 hour of notification.	<p>Residential customer means a customer who owns real property which is used as a principal place of residence.</p> <p>Property as per I 1.</p> <p>Sewer spills refers to a sewer spill caused by a fault in the water utility's sewerage system that discharges to a customer's dwelling. It does not include spills caused by faults in the service connection or house connection branch and the house service line.</p> <p>Contained means the sewage spill has ceased or has been alleviated. It does not include sewer spills caused by faults or blockages in the customer's pipes.</p>

IPART Indicator No.	Indicator	Definitions
I 9 (previous RT 1 - see Note A below)	Percentage of priority 6 breaks/leaks in drinking water mains that Sydney Water responded to within 3 hours.	<p>Water Main Breaks/Leaks refers to the trunk and reticulation components of Sydney Water's drinking water supply system between water treatment plants and a property.</p> <p>Response time is measured from when Sydney Water receives notification of a break or leak to the time Sydney Water stops the loss of water.</p> <p>Priority level 6 A high flow of water causing an immediate danger to people, property or the environment. A leak that:</p> <ul style="list-style-type: none"> a) is to result or results in a major loss of water b) is to cause or causes damage to property, or c) is to pose or poses immediate danger to the environment or people. <p>An example of a Priority 6 leak is water gushing or spurting from the ground and resulting in a major loss of water.</p>
I 10 (previous RT 2 - see Note A below)	Percentage of priority 5 breaks/leaks in drinking water mains that Sydney Water responded to within 6 hours.	<p>Priority level 5 A moderate flow of water representing a risk to people, property or the environment. A leak that:</p> <ul style="list-style-type: none"> a) is to result or results in the moderate loss of water b) is to cause or causes service disruption to a customer or customers c) is to threaten or may threaten damage to property, or d) is to pose or poses a potential risk to the environment or people. <p>An example of a Priority 5 leak is a leak that results in a moderate loss of water. A leak classified as a Priority 5 would be running at a rate greater than the full flow of a garden tap.</p>
I 11 (see Note A below)	Percentage of priority 5 breaks/leaks in drinking water mains that Sydney Water responded to within 24 hours.	<p>Priority level 5 A moderate flow of water representing a risk to people, property or the environment. A leak that:</p> <ul style="list-style-type: none"> a) is to result or results in the moderate loss of water b) is to cause or causes service disruption to a customer or customers c) is to threaten or may threaten damage to property, or d) is to pose or poses a potential risk to the environment or people.

IPART Indicator No.	Indicator	Definitions
		An example of a Priority 5 leak is a leak that results in a moderate loss of water. A leak classified as a Priority 5 would be running at a rate greater than the full flow of a garden tap.
I 12 (Previously RT 3 – see note A below)	Percentage of priority 4 breaks/leaks in drinking water mains that Sydney Water responded to within 5 days.	<p>Priority level 4</p> <p>A low flow of water that does not represent a risk to people, property or the environment.</p> <p>A leak that:</p> <ul style="list-style-type: none"> a) is to result or results in a minor loss of water b) is to cause or causes a limited service disruption to: <ul style="list-style-type: none"> – customers, ie lower pressure than normal or a reported – minor leak on a roadway, and c) is not a danger to the environment or people. <p>An example of a Priority 4 leak is a leak which results in a minor loss of water. A leak classified as a Priority 4 would be running at a rate less than the full flow of a garden tap.</p> <p><i>[Note: Priority level 3 breaks are those defined as creating a visible damp or wet area with no apparent flow of water. Leaks at or below Priority 3 level are not included in the above definition.]</i></p>

[Note: Under section 4.2.2 of this Reporting Manual, Sydney Water is required to report on its response times to breaks and leaks in respect of I9 to I12.]

D | IPART performance indicators - environment

The table in this appendix sets out the environmental performance indicators required to be provided to IPART as follows.

Table D.1 Performance Indicators - Environment

IPART Indicator No.	Indicator detail	Definitions
E 1	Total number of proceedings and Penalty Notices under the Protection of the <i>Environment Operations (POEO) Act 1997</i> issued to the water utility.	<p>Proceedings refer to proceedings in connection with the POEO Act for prescribed offences.</p> <p>Penalty Notice is a notice to the effect that, if the person served with the notice does not wish to have a specified penalty offence dealt with by a court, the person may pay the penalty prescribed under section 227 for the offence.</p>
E 2	Total number of proceedings and Penalty Notices under the <i>Protection of the Environment Operations (POEO) Act 1997</i> issued to contractors engaged by the water utility.	<p>Note for E2 -this indicator refers to penalty notices which contractors inform the water utility were incurred whilst they were conducting works for the corporation. Each breach notice will be reported on the date that the contractor informed the water utility, not on the date the penalty was incurred or the date the notice was issued to the contractor.</p>
E 3	Total electricity consumption by water assets (kWh/ML of water supplied to be included).	<p>Water supplied is the total metered volume of water (potable or non-potable) supplied to customers over the reporting period plus estimated non-metered water supplied. This comprises the sum of residential water supplied, commercial, municipal and industrial water supplied and other water supplied (includes estimated non-metered water supplied). It includes recycled water and urban stormwater used but excludes agricultural irrigation, environmental water and managed aquifer recharge.</p>
E 4	Total electricity consumption by sewer assets (KWh/ML of sewage collected).	<p>Sewage treated is the total volume of sewage collected by the water utility, measured as treatment plant inflow, plus sewage treated by another business on behalf of the water utility eg, wholesaler. This measure should equal the sum of volumes reported for residential, non-residential and non-trade waste collected and trade waste collected.</p>
E 5	Electricity consumption from renewable sources or generated by the water utility expressed as a percentage of total electricity consumption.	<p>Renewable energy is electricity sourced from non-fossil fuel sources.</p>

IPART Indicator No.	Indicator detail	Definitions
E 6 (S)	Total volume of Controlled Sewage Overflows that occur in dry weather, expressed as a percentage of total sewage effluent discharged to the environment.	<p>Controlled Sewage Overflow is a Sewage Overflow that is directed by Sydney Water via a designed structure to a predetermined location, such as a stormwater system or waterway, in order to prevent overloaded or blocked sewers from discharging at sensitive locations, on private property or within buildings thus endangering public health or causing a public nuisance.</p> <p>Sewage means untreated liquid waste received in the reticulation system (includes the wastewater from homes, offices, shops, factories and other premises discharged to the sewer).</p> <p>Sewage overflow – the discharge of untreated, diluted or partially treated sewage from the sewerage system which may occur in dry weather or in wet weather.</p> <p>Dry weather overflow means where a sewer overflow has been caused by an identified blockage in the utility's sewerage system (e.g. tree root intrusion) or a system failure not related to capacity (eg, pumping station failure). It is a sewage overflow occurring when there is dry weather flow in the sewer, as determined by Sydney Water's hydraulic sewer system model.</p> <p>Effluent means sewage that has received all of the designed treatment processes at the water utility's sewage treatment plant.</p> <p>For this indicator, total sewage effluent discharged to the environment is inclusive of wet weather flows.</p> <p>Note: Indicator E 6 (S) is calculated as follows: $\text{Total Volume of all overflows from controlled structures as \%} = \frac{\text{[Total Volume of all overflows from controlled structures]}}{\text{[Total volume (treated effluent + overflows from control structures networks)]}}$</p>
E 7 (S)	Percentage of trade waste customers in compliance with their wastewater discharge limits as outlined in their water utility trade waste agreements.	<p>Trade Waste is any waste water generated from or as a result of an industrial or commercial activity undertaken, other than at domestic or household premises.</p> <p>Note: For the purpose of this indicator, customers refers to industrial customers only, and not commercial customers.</p> <p>Trade Waste agreement means a written contract authorising discharge of trade wastewater to the water utility's sewerage system and requiring compliance with set terms and conditions.</p>
E 8	Total mass of biosolids produced by the water utility.	<p>Biosolids means the stabilised organic solids derived from sewage treatment processes.</p> <p>Total Mass means the quantity in dry tonnes of biosolids captured and removed from sewage treatment plants.</p>

IPART Indicator No.	Indicator detail	Definitions
E 9	Percent of solid waste recycled or reused expressed as a percentage of solid waste generated.	<p>Solid Waste is any solid substance that is discarded, rejected, unwanted, in surplus or abandoned. It does not include gas, energy, water, wastewater, biosolids diverted for beneficial reuse and reuse water.</p> <p>Recycled means the conversion of waste materials into a usable product or resource. The process of recycling includes: the diversion or extraction of the material from the waste stream; the collection and sorting of recyclable materials; and the processing of those materials into products which can then be used (or sold for use). Materials are deemed to have been recycled when they are transferred to a facility for processing or manufacturing (eg, a recycling centre). Energy recovery (or waste-to-energy) is another form of recycling, which involves recovery of latent energy rather than a physical resource.</p> <p>Re-use is the application of a diverted waste product to a subsequent use which may be the same or different from the original purpose and which extends the life of the product, but without further manufacture. Beneficial re-use is generally taken to mean that the form of re-use delivers some benefit (economic, social or environmental).</p>
E 10 (S)	Total mass of solid waste generated by the water utility.	<p>The process of recycling includes: the diversion or extraction of the material from the waste stream; the collection and sorting of recyclable materials; and the processing of those materials into products which can then be used (or sold for use). Materials are deemed to have been recycled when they are transferred to a facility for processing or manufacturing (eg, a recycling centre). Energy recovery (or waste-to-energy) is another form of recycling, which involves recovery of latent energy rather than a physical resource.</p> <p>Re-use is the application of a diverted waste product to a subsequent use which may be the same or different from the original purpose and which extends the life of the product, but without further manufacture. Beneficial re-use is generally taken to mean that the form of re-use delivers some benefit (economic, social or environmental).</p>
E 11	Total area of clearing of native vegetation.	<p>Native vegetation indicators will be an estimate based on the production of the water utility's Environmental Management Plans and documents, or triggered by Flora and Fauna studies. It will only be reported above 0.01 Hectares.</p>
E 12	Total area of native vegetation rehabilitated, including due to replanting and protection by the water utility.	<p>The definition of Native Vegetation will be derived from the <i>Native Vegetation Act 2003</i> (NV Act). The Objects of the NV Act provide guidance as to what needs to be considered when assessing whether an area will be included in the vegetation loss figures.</p>
E 13	Total area of native vegetation gain due to rehabilitation, replanting and protection by the water utility.	<p>Note: Indicator will include works undertaken by or on behalf of the water utility on land that is not owned by the water utility, such as offsetting impacts to one area by rehabilitation or replanting at another site. This is to be reported on a financial year basis only. Planned rehabilitation or clearing works are not to be included until such time as the works are completed.</p> <p>$E13 = E12 - E11$.</p>
E 14	Total number and nature of proceedings or Penalty Notices of conditions under licences issued to the water utility by NOW for water management.	<p>Proceedings refers to proceedings in connection with the Water Management Act for prescribed offences.</p> <p>Penalty notice means a notice to the effect that, if the person served with the notice does not wish to have an alleged offence dealt with by a court, the person may pay, in accordance with the notice, the penalty specified in the notice.</p> <p>NOW means the NSW Office of Water.</p>

E | IPART performance indicators - customers

The tables in this appendix set out the customer performance indicators required to be provided to IPART as follows.

Table E.1 Performance Indicators - Customers

IPART Indicator No.	Indicator detail	Definitions
C 1	The percentage of complaints resolved within 10 business days.	<p>Complaint is defined in AS ISO 10002-2014 or the most recent up-date of that standard. This AS ISO defines a complaint as an expression of dissatisfaction made to an organisation, related to its products, services, staff or the handling of a complaint, or the complaints-handling process itself, where a response or resolution is explicitly or implicitly expected.</p> <p>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 system is considered to be a complaint. <p>Resolution of a complaint means that:</p> <ol style="list-style-type: none"> a. the complaint is resolved to a customer's satisfaction, or b. the customer is provided with an explanation as to why no further action is proposed in relation to the complaint, or

IPART Indicator No.	Indicator detail	Definitions
		c. the customer is provided with a date when the issue will be resolved if the complaint is relating to future planned operational or capital works.
C 2	Percent of calls abandoned	
C 3	Percent of metered accounts of customers that receive a bill not based on a business meter read for one year.	<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>
C 4	The total number of residential customers disconnected for non-payment of amounts owed to the water utility.	<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 customers not classified as a residential customer.</p> <p>Disconnection means the stopping (either temporarily or permanently) of water supply to a customer's property.</p>
C 5	The total number of non-residential customers disconnected for non-payment of amounts owed to the water utility.	<p>Flow Restriction means a direct intervention in the water supply system by the utility in order to reduce flow to a customer's property.</p>
C 6	Total number of residential customers on whom water flow restrictions have been imposed.	
C 7	Total number of non-residential customers on whom water flow restrictions have been imposed.	

IPART Indicator No.	Indicator detail	Definitions
C 8	Number of residential customers per 1000 residential properties experiencing financial difficulty who are being assisted through the water utility's hardship program or payment plans.	<p>Residential customer as per C 4.</p> <p>Property means any real property to which either or both of the following conditions apply:</p> <ol style="list-style-type: none"> a. the real property is connected to the water utility's drinking water supply system, sewerage system or recycled water system and a charge for the services provided by one or more of those systems is levied on the owner of the real property b. the real property is within a declared stormwater drainage area for which the water utility imposes a stormwater charge upon the owner of real property in that area. <p>Payment plan is a plan for a residential customer experiencing payment difficulties to pay a retailer by periodic instalments, or any amount payable by the customer. A payment plan must only include an arrangement in which the customer is paying off an arrears component (of any overdue amount) and must consist of at least three instalments.</p>
C 9	<p>Percentage of residential customers in C 8 who are:</p> <ol style="list-style-type: none"> (a) not meeting ongoing water and sewerage costs (debt increasing) (b) covering ongoing water and sewerage costs (debt stable) (c) covering ongoing costs and portion of arrears (debt reducing). 	<p>Residential customer as per C 4.</p>
C 10	<p>Percentage of residential customers in C 8 who pay by:</p> <ol style="list-style-type: none"> (a) Payment plan (b) Centrepay. 	<p>Residential Customer as per C 4.</p> <p>Payment plan as per C 8.</p> <p>Centrepay is a service offered by Centrelink that allows customers to pay their water bills by having an amount deducted from their Centrelink payments and paid directly to the water utility.</p> <p>Flow restriction as per C 4.</p>
C 11	<p>Break up by percentage of residential customers who no longer meet C 8 by exiting the water utility's hardship program or payment plans because:</p> <ol style="list-style-type: none"> (a) they have paid off their outstanding debt (b) they have been flow restricted (c) other. 	

IPART Indicator No.	Indicator detail	Definitions
C 12	The number of non-residential customers affected by an unplanned water interruption of greater than 1 hour duration.	<p>Non-Residential customer means all customers not classified as a residential customer.</p> <p>Water Interruption means any event causing a total loss of water supply due to any cause. Water interruption excludes those caused by bursts or leaks in the service connection to internal plumbing or planned meter replacements. All interruptions not subject to notification caused by third parties or a power failure should be included. Exclude instances of reduced service levels due to, for example, low pressure. If a property experiences more than one interruption then it should be counted for each event. A water supply interruption, which causes loss of supply to 100 customers, is counted as 100 customer interruptions.</p> <p>Unplanned water interruption means an interruption in which an occupier of a property has not received at least 24 hours notification of the interruption or an interruption that has occurred prior to the expiry of any notice provided to an occupier advising of an interruption. It also includes outages where the duration exceeds that originally notified. In this case the entire outage is classed as unplanned.</p>
C 13	The average duration of unplanned interruptions experienced by non-residential customers.	

F Drinking Water health and aesthetic water characteristics and raw water operational monitoring characteristics

Important note:

The following table outlines the characteristics to be monitored as required by NSW Health under ADWG 2011. The characteristics and / or the guideline values will only be changed between versions of the Reporting Manual with the written approval of NSW Health.

The assessment of long term performance for both health and aesthetic characteristics is detailed below:

Evaluating long term microbial performance – in agreement with NSW Health at least 98% of scheduled samples collected over the preceding 12 months contain no *Escherichia coli* (or thermotolerant coliforms).

Evaluating long term health related chemicals – the 95th percentile statistic calculated for the previous 12 months must be less than the guideline value.

Evaluating long term aesthetic characteristics – the mean value (or average) of results over the preceding 12 months must be less than the guideline value.

Table F.1 Public Reporting - Drinking water health and aesthetic water characteristics and raw water operational monitoring characteristics

Drinking Water Quality –					
Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
micro-organisms					
<i>E. coli</i> (or thermotolerant coliforms)	supply to consumer/distribution system	at least weekly (number of samples based on population)	H	not detected/100 mL (reported as <1orgs/100 mL)	Key parameter – monitored as per ADWG 2011. An indicator of faecal contamination from warm blooded animals.
physical characteristics					
dissolved oxygen	supply to consumer/distribution system	monthly	A	>85% sat.	Some treatment processes may reduce DO content.
hardness (as CaCO ₃)	supply to consumer/distribution system	monthly if water treated for hardness, otherwise quarterly	A	200	Hardness is caused by calcium and magnesium salts. All water supplied by Sydney Water is relatively soft.
pH	supply to consumer/distribution system	fortnightly	A	6.5-8.5	Key risks are buffering problems at WFPs and cement lined mains leaching lime and causing higher pH.
taste	supply to consumer/distribution system	annually -complaints	A	acceptable (3)	May indicate undesirable contaminants. Source of problem often difficult to identify. Can occur from problems such as algae, biofilm, chlorine, dissolved solids and metals such as iron, copper manganese and zinc.

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
odour	supply to consumer/ distribution system	annually - complaints	A	acceptable (3)	May indicate undesirable contaminants. Source of problem often difficult to identify. Can occur from problems such as algae, biofilm, chlorine, dissolved solids and metals such as iron, copper manganese and zinc.
temperature	supply to consumer/ distribution system	weekly (normally measured when a microbiological sample is taken)	A	no value	Carried out as standard procedure with Coliform analysis. Rapid changes may bring complaints.
total dissolved solids	supply to consumer/ distribution system	quarterly	A	600	This characteristic is unlikely to vary significantly throughout the system. A high TDS can be caused by high levels of salts which can have adverse effects on some industrial processes.
true colour	supply to consumer/ distribution system	monthly	A	15	Sources of colour in water can include iron, manganese, humic and fulvic acids and dissolved plant components. Colour removal occurs in the treatment process.
turbidity	supply to consumer/ distribution system	monthly	A	5 NTU	NSW Health requires inclusion for compliance purposes. Higher turbidity may shield some micro-organisms from disinfection and create a chlorine demand. Caused by presence of suspended matter. Can be of health concern in that particulates may comprise toxic material or absorb them. Turbidity is removed through water treatment processes.

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
Inorganic chemicals					
Disinfection Agents and Inorganic By-products of Disinfection					
bromate	supply to consumer/ distribution system	weekly if ozonation used, otherwise not required	H	0.02	Ozonation not used as a primary disinfectant. Monitoring not required.
chloramine – see monochloramine	supply to consumer/ distribution system	weekly if used as a disinfectant			See monochloramine
chlorine (free)	supply to consumer/ distribution system	weekly if used as a disinfectant	H A	5 0.6	Key parameter. Used as a p primary and secondary disinfectant. Unlikely to exceed health guideline value except in exceptional circumstances. Aesthetic guideline value is routinely exceeded to minimise microbiological risks.
monochloramine	supply to consumer/ distribution system	weekly if used as a disinfectant	H	3	Used as disinfectant in chloraminated systems. Odour threshold for monochloramine is 0.5 mg/L.
other inorganic chemicals					
aluminium (acid-soluble)	supply to consumer/ distribution system	weekly if aluminium salts used in clarification	A	0.2	Usually associated in drinking water with use of Aluminium salts in flocculation, or from clay soils. Alum salts are no longer used by Sydney Water.

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
ammonia (as NH ₃)	supply to consumer/ distribution system	monthly	A	0.5	Key characteristic – monitored in all delivery systems as of 2003/04. Ammonia is added at WFPs for disinfection purposes. Apart from addition for disinfection purposes, may indicate presence of sewage contamination and/or microbiological activity.
antimony	supply to consumer/ distribution system	quarterly	H	0.003	May result from use of antimony-tin solder – not used by Sydney Water on water mains or treatment processes.
arsenic	raw water	quarterly	H	0.01	Possibly from natural sources. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
asbestos	supply to consumer/ distribution system	annually if at all		none	Asbestos pipe accounts for less than 1% of pipe in Sydney Water's area. The LGAs with most existing asbestos pipe are the Blue Mountains, Hawkesbury and Fairfield. Not for routine compliance monitoring as there is no guideline value. Refer to Section V (Fact Sheets) in ADWG 2011.
barium	raw water	quarterly	H	2	Barium can occur naturally from exposure to barium containing rocks. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.

Drinking Water Quality –					
Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
beryllium	raw water	annually if at all	H	0.06	Can occur from the weathering of rocks and burning of fossil fuels. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
boron	raw water	Quarterly	H	4	From natural leaching of minerals and contamination, possibly from seawater intrusion. Monitor for North Richmond only. Raw water monitoring is the responsibility of SCA for other systems.
cadmium	supply to consumer/ distribution system	quarterly/specific investigation	H	0.002	Can occur from industrial or agricultural contamination or from galvanised pipe or fitting corrosion. There are still significant quantities of galvanised pipe in use for main to meter water services, although no longer installed.
chloride	supply to consumer/ distribution system	quarterly	A	250	Not considered to be a problem for Sydney's water supply, from natural mineral salts or effluent contamination.
chromium (as Cr(VI))	supply to consumer/ distribution system	quarterly	H	0.05	From industrial/agricultural contamination of raw water or corrosion of plumbing materials. Classified as human carcinogen.
copper	supply to consumer/ distribution system	monthly / specific investigation	H A	2 1	Potential for copper levels to occur due to corrosion of copper fittings by soft water. Sydney has soft water. A key WQ characteristic monitored each year.
cyanide	supply to consumer/ distribution system	annually if at all	H	0.08	From industrial wastes and some plants and bacteria.

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
fluoride	supply to consumer/ distribution system	weekly if fluoridated, otherwise quarterly	H	0.9 - 1.5	Fluoride is added to the water at all WFPs. Can also occur naturally in some waters from fluoride-containing rocks. The ADWG 2011 health guideline for fluoride is 1.5 mg/L. Sydney Water measures fluoride against the <i>Fluoridation of Public Water Supplies Act 1957</i> which requires fluoride to be between 0.9 and 1.5 mg/L. This characteristic is unlikely to vary significantly throughout each WFP system.
hydrogen sulfide	supply to consumer/ distribution system	monthly	A	0.05	Formed in water by sulfate-reducing micro-organisms or hydrolysis of soluble sulfide under anoxic conditions. Aesthetic guideline value only.
iodide	raw water	annually if at all	H	0.5	From mineral and salt deposits. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
iron	supply to consumer/ distribution system	fortnightly, or weekly if used as coagulant	A	0.3	Key parameter. Iron (ferric chloride) is added as a coagulant aid at WFPs. Occurs naturally in water. Can result from corrosion of iron pipes. Can stain laundry Iron bacteria can block pipework, cause taste/odour and corrosion.

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
lead	supply to consumer/ distribution system	monthly/specific investigation	H	0.01	Occurs in water from dissolution from natural sources or from pipes and fittings containing lead. There still exist old lead jointed mains in the Sydney area.
manganese	supply to consumer/ distribution system	fortnightly	H A	0.5 0.1	Key parameter. Occurs naturally in water, higher in oxygen depleted water. Can cause staining and taste. Less than 0.05 mg/L is desirable. Problems with manganese have been experienced in the past in several systems.
mercury	raw water	quarterly	H	0.001	Very low concentrations occur naturally. From industrial emissions/spills or possibly contaminant in chemicals. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
molybdenum	raw water	quarterly	H	0.05	From mining, agriculture or fly-ash deposits from coal fuelled power stations. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
nickel	supply to consumer/ distribution system	quarterly / specific investigation	H	0.02	From nickel plated fittings.

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
nitrate	supply to consumer/ distribution system	monthly	H	50 as NO ₃	Key characteristic in chloraminated systems. Occurs naturally. From intensive farming and sewage effluent. Presence is more likely in chloraminated systems where ammonia is used in conjunction with chlorine, for disinfection purposes.
nitrite	supply to consumer/ distribution system	monthly	H	3 as NO ₂	Key characteristic in chloraminated systems. Presence is more likely in chloraminated systems where ammonia is used in conjunction with chlorine, for disinfection purposes.
selenium	raw water	quarterly	H	0.01	Generally low levels in natural water. Can occur from selenium concentrations in some soil. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
silver	raw water	annually if at all	H	0.1	May occur in very low concentrations in natural waters from natural sources and industrial wastes. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
sodium	supply to consumer/ distribution system	quarterly	A	180	Natural component of water. Drinking water is generally a minor contributor to the total dietary intake of sodium.

Drinking Water Quality –					
Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
sulfate	treated water	quarterly	H	500	Natural component of water, and may be added via treatment chemicals. Aluminium sulfate is not used as a coagulant at WFPs. Copper sulfate is not used to control algae in storage dams. Not considered to warrant further monitoring at this time. Possible inclusion within next 3 years for background data.
			A	250	
tin	raw water	annually if at all		none	Concentration in water is very low. One of least toxic metals. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond. Not for routine compliance monitoring as there is no guideline value.
zinc	supply to consumer/ distribution system	monthly / specific investigation	A	3	Key characteristic. Usually occurs from corrosion of galvanised pipes, fittings and brasses. Adverse health effects from zinc are believed to relate more from too low intake rather than too high.
organic compounds					
acrylamide	treated water	quarterly	H	0.0002	Acrylamide occurs as a minor impurity in polyacrylamide. It may be contained in some polymers used as filter aids at water filtration plants or as a coagulant before thickening on recycle systems.

Drinking Water Quality –

ADWG 2011 recommendation

Characteristics	Location	Frequency	Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
benzene	raw water	annually if at all	H	0.001	From atmospheric deposition and chemical plant effluent. Human carcinogen. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
carbon tetrachloride	treated water	quarterly	H	0.003	Sometimes occurs as impurity in chlorine used for disinfection. Also used in manufacture of chlorofluoromethane, in fire extinguishers, solvents and cleaning agents.
chlorobenzene	raw water	annually if at all	H A	0.3 0.01	From spills and discharges. Monitor in event of spill only. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond. No routine monitoring.
dichlorobenzenes	raw water	annually if at all			Could occur from spills, discharges or leaching from contaminated soils. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
1,2-dichlorobenzene (1,2-DCB)			H A	1.5 0.001	
1,3-dichlorobenzene (1,3-DCB)			A	0.02	
1,4-dichlorobenzene (1,4-DCB)			H A	0.04 0.0003	
dichloroethanes	raw water	annually if at all			Possibly from industrial effluents, spills, discharges or atmospheric deposition. Monitor for 1,2-dichloroethane at North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
1,1-dichloroethane				none	
1,2-dichloroethane			H	0.003	

Drinking Water Quality –**ADWG 2011 recommendation**

Characteristics	Location	Frequency	Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
dichloroethenes	raw water	annually if at all			
1,1-dichloroethene (1,1-DCE)			H	0.03	Rarely found in drinking water. Found occasionally in ground water from wells heavily contaminated by solvents.
1,2-dichloroethene (1,2-DCE)			H	0.06	Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
dichloromethane (methylene chloride)	raw water	annually if at all	H	0.004	Used in manufacture of paint removers, insecticides, solvents and cleaners. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
epichlorohydrin	treated water	annually if at all	H	0.0005	Used in manufacture of some resins used in water treatment and as raw material in the manufacture of flocculants. According to ADWG 2011 the health guideline value is below the limit of detection with current analytical procedures however previous testing in Australia has detected at levels as low as 0.0002 mg/L.
ethylbenzene	raw water	annually if at all	H A	0.3 0.003	Component of petrol and petroleum products. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.

Drinking Water Quality –

ADWG 2011 recommendation

Characteristics	Location	Frequency	Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
ethylenediamine tetraacetic acid (EDTA)	raw water	annually if at all	H	0.25	Metal complexing agent widely used in industry and agriculture. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems. Lab with NATA accredited method not identified.
hexachlorobutadiene	raw water	annually if at all	H	0.0007	Industrial solvent. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
nitritotriacetic acid (NTA)	raw water	annually if at all	H	0.2	Chelating agent in laundry detergents. May enter water through sewage contamination. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems. Lab with NATA accredited method not identified.
dialkyltins tributyltin oxide	raw water	annually if at all	H	None 0.001	Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems. NATA accredited or equivalent method not identified.

Drinking Water Quality –**ADWG 2011 recommendation**

Characteristics	Location	Frequency	Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
plasticisers di(2-ethylhexyl) phthalate (DEHP) di(2-ethylhexyl) adipate (DEIqA)	supply to consumer/ distribution system	annually if at all	H	0.01 None	Used in all flexible PVC products and may leach from these over a long time. Could also occur from spills. PVC pipe accounts for less than 5 % of water mains and has only been used in limited amounts in the last 20 years. Usage is increasing. Monitor for di(2-ethylhexyl) phthalate (DEHP) only.
polycyclic aromatic hydrocarbons (PAHs) Benzo-(a)-pyrene	supply to consumer/ distribution system	annually if at all	H	0.00001	Contamination can occur through atmospheric deposition, or leaching from bituminous linings. Bituminous lining is not generally used in water mains but was used on steel reservoirs prior to 1990. Monitor for background data, for compliance purposes at customer's tap.
styrene (vinylbenzene)	raw water	annually if at all	H A	0.03 0.004	Possibly from industrial contamination. Can be used in manufacture of plastics, synthetic rubbers, resins and insulators. Monitor for North Richmond only. Raw water monitoring is responsibility of SCA for other systems.
tetrachloroethene	raw water	annually if at all	H	0.05	Dry cleaning solvent and metal de-greaser. Could occur in drinking water from spills. Routine monitoring not required. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond.

Drinking Water Quality –**ADWG 2011 recommendation**

Characteristics	Location	Frequency	Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
toluene	supply to consumer/ distribution system	annually if at all	H A	0.8 0.025	Occurs naturally in petrol and natural gas, forest fire emissions. Could occur in drinking water from atmospheric deposition, industrial contamination, leaching from protective coatings in storage tanks.
trichlorobenzenes (total)	raw water	annually if at all	H A	0.03 0.005	Industrial chemical used as a solvent, dielectric fluid and in polyester dyeing. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond.
1,1,1-trichloroethane	raw water	annually if at all		None	Industrial chemical. Could occur from spills. Routine monitoring not required. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond.
trichloroethylene (TCE)	raw water	annually if at all		None	Used as a solvent in dry cleaning, refrigerant and fumigant. Could occur from spills. Routine monitoring not required. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond.
vinyl chloride	raw water	annually if at all	H	0.0003	Used in production of PVC resins for building and construction. Used in manufacture of early PVC pipes – no longer used. Sydney Water does not have any quantities of PVC pipes made with this compound. Could occur from spills. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond.

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
xylene	supply to consumer/ distribution system	annually if at all	H A	0.6 0.02	Could occur in drinking water as a pollutant, or from solvent used for bonding plastic fittings. Used in aviation fuels and petroleum and other chemicals. Sydney Water uses rubber ring joints for plastic pipes, not bonding agents.
disinfection by-products					
Distribution system: As a minimum monitoring should be carried out for trihalomethanes. If concentrations exceed the guideline value, then other by-products should be analysed specifically. Monthly samples should be taken from each distribution system, with more samples if:					
<ul style="list-style-type: none"> ▼ the chlorine disinfection dose is increased substantially ▼ trihalomethane concentrations exceed the guideline value ▼ the source of supply is changed. 					
chlorinated furanones	supply to consumer/ distribution system			none	By-product of Chlorination. Not for routine compliance monitoring as there is no guideline value.
chloroacetic acids	supply to consumer/ distribution system				By-product of Chlorination.
chloroacetic acid			H	0.15	
dichloroacetic acid			H	0.10	
trichloroacetic acid			H	0.10	
chloroketones	supply to consumer/ distribution system				By-product of Chlorination. Not for routine compliance monitoring as there is no guideline value.
1,1-dichloropropanone				none	
1,3- dichloropropanone				none	
1,1,1- trichloropropanone				none	
1,1,3- trichloropropanone				none	

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
chlorophenols	supply to consumer/ distribution system				By-product of Chlorination of water containing phenols.
2-chlorophenol			H	0.3	
			A	0.0001	
2,4-dichlorophenol			H	0.2	
			A	0.0003	
2,4,6-trichlorophenol		H	0.02		
		A	0.002		
chloropicrin	supply to consumer/ distribution system			None	By-product of Chlorination. Not for routine compliance monitoring as there is no guideline value.
cyanogen chloride	supply to consumer/ distribution system		H	0.08	By-product of Chloramination.
formaldehyde	supply to consumer/ distribution system		H	0.5	By-product of Ozonation.
haloacetonitriles	supply to consumer/ distribution system				By-product of Chlorination. Not for routine compliance monitoring as there is no guideline value.
dichloroacetonitrile				None	
dichloroacetonitrile				None	
dichloroacetonitrile				None	
trichloroacetaldehyde (chloral Hydrate)	supply to consumer/ distribution system		H	0.02	By-product of Chlorination. Lab with NATA accredited method not identified.
trihalomethanes	distribution system & outlet of WFPs		H	0.25	By-product of Chlorination and Chloramination.
n-nitrosodimethylamine (NDMA)	distribution system & outlet of WFPs		H	0.0001	By-product of Chlorination and Chloramination.

Drinking Water Quality –**ADWG 2011 recommendation**

Characteristics	Location	Frequency	Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
pesticides	raw water	one sample per month from storage reservoir inlet or intake to distribution should be analysed for those pesticides previously detected in the source water, or where their likely use would indicate that they might be detected sampling for some pesticides is required 5-yearly, 3-yearly, or annually, based on agreement with NSW Health.	H	various	The main risks for pesticides are agricultural and domestic use in catchment areas and spills. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond.

Drinking Water Quality –

Characteristics	ADWG 2011 recommendation		Health/aesthetic characteristic	Guideline value (mg/L unless otherwise noted)	Key Risk Area / Comments
	Location	Frequency			
radiological characteristics					
gross alpha	raw water	radiological quality should be assessed when a new supply is brought into service, and then every two years for ground water supplies, and every 5 years for surface water supplies.	H	0.5 Bq/L	Primary risk is from natural sources in catchments. Raw water monitoring is responsibility of SCA for other systems, except for North Richmond. No specific guideline values are set for beta- or gamma-emitting radionuclides. Specific beta- or gamma-emitting radionuclides should be identified and determined only if gross beta radioactivity (after subtracting the contribution of potassium-40) exceeds 0.5 Bq/L (27.6 Bq of beta activity per gram of stable potassium). It should never be regarded as a guideline value, or even as an indicative water quality target.
gross beta			H	0.5 Bq/L	
micro-organisms - Protozoa					
<i>Cryptosporidium</i>	N/A	N/A		N/A	
<i>Giardia</i>	N/A	N/A		N/A	
micro-organisms – cyanobacteria and their toxins					
Microcystins	NA	NA	H	1.3 µg/L	There are also alert/notification levels based on cell count and biovolume of a specific group of potentially toxic cyanobacteria.
Cylindrospermopsin	NA	NA	Alert level	1 µg/L	
Nodularin	NA	NA	Alert level	1.3 µg/L	
Saxitoxins	NA	NA	Alert level	3 µg/L	

