

Sydney Water's Operating Licence Review 2023-2024

**Appendix 2 – Additional
information on System
Performance Standards**

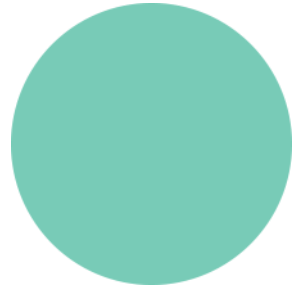
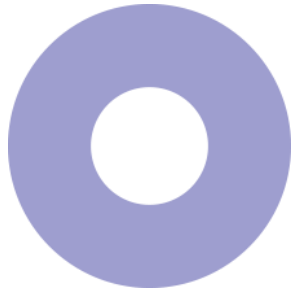




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1 Introduction

The purpose of system performance standards in Sydney Water's Operating Licence are to provide a minimum guarantee to customers in relation to the drinking water and wastewater service on their property. This is because customers effectively have no real choice over their service provider in the current market. The standards recognise that some failures will occur within a system, but these failures and their impacts should be limited to a level consistent with the expectations of customers and what is cost effective for Sydney Water to achieve with an aim to keep bills affordable.

The requirement for system performance standards relating to service interruptions in our Operating Licence is derived from the *Sydney Water Act 1994* (NSW).¹ While the Act requires that the licence include performance standards, the question of what aspects of our performance are covered by those standards is essentially resolved through IPART's review process.

When considering the issue of performance standards, IPART considers the costs and benefits of providing different levels of service and customers' preferences and willingness-to-pay, in the context of historical and expected levels of performance.

Sydney Water's current *Operating Licence 2019-2023* contains four system performance standards in relation to:

- water continuity,
- water pressure, and
- dry weather wastewater overflows onto private properties (which consists of separate standards for single or multiple overflows).²


Each standard, in effect, sets a limit on the maximum number of affected properties in any one year. This is expressed as the proportion of properties that must be unaffected out of 10,000 properties. The proportional element to the standard was introduced as a result of the last Operating Licence review and allows for the standard to naturally adjust to growth in the number of connected properties.

Where we are in breach of our Operating Licence requirements, IPART may take enforcement action or impose penalties on Sydney Water. Enforcement actions may consist of a letter of reprimand from the Minister, monetary penalties up to \$1 million, or in severe circumstances may result in the cancellation of our Operating Licence.

As part of its current review of Sydney Water's Operating Licence, IPART seeks to determine if these minimum standards need resetting. The information within this Appendix has been prepared to inform IPART's review, in consideration of items requested in their Issues Paper.

¹ *Sydney Water Act 1994* (NSW), s 14.

² Relatedly, our Environmental Protection Licences (EPLs) contain limits on our wet and dry weather wastewater overflows onto public property or that may impact the environment.



We propose to provide further data and information on the:

- benefits and costs of providing current service levels for the water continuity, water pressure and dry weather wastewater overflows standards in our licence and changes to those service levels,
- expected levels of performance, and
- provisions to guard against repeat service interruptions.

in a separate submission at a later date.

Currently, we are determining the appropriate level for each of these standards that generates the highest net benefit and reflects customers' willingness to pay, in line with the approach set out in IPART's Cost-Benefit Analysis Approach Paper.³ This will involve surveying our customers to determine willingness to pay for different service levels, as part of Sydney Water's 'Our Water, Our Voice' customer engagement program. In parallel, we are also quantifying the costs of delivering these services, based on data and analysis from our planning and operations teams.

³ IPART (2023) *Sydney Water Operating Licence Review Approach to Cost-Benefit Analysis Information Paper*, https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Information-Paper-Approach-to-Cost-Benefit-Analysis-Sydney-Water-Operating-Licence-Review-July-2023.PDF, p. 8.



2 Performance

2.1 Water continuity

Our *Operating Licence 2019-2023* currently requires us to ensure that at least 9,800 per 10,000 properties receive drinking water supply service unaffected by an Unplanned Water Interruption each financial year.

An Unplanned Water Interruption is defined as an event where:

- a. the supply of drinking water at a property is interrupted without the customer having received prior notice (where prior notice is defined as at least 48 hours notice); and
- b. it takes more than five continuous hours for normal supply to be restored.

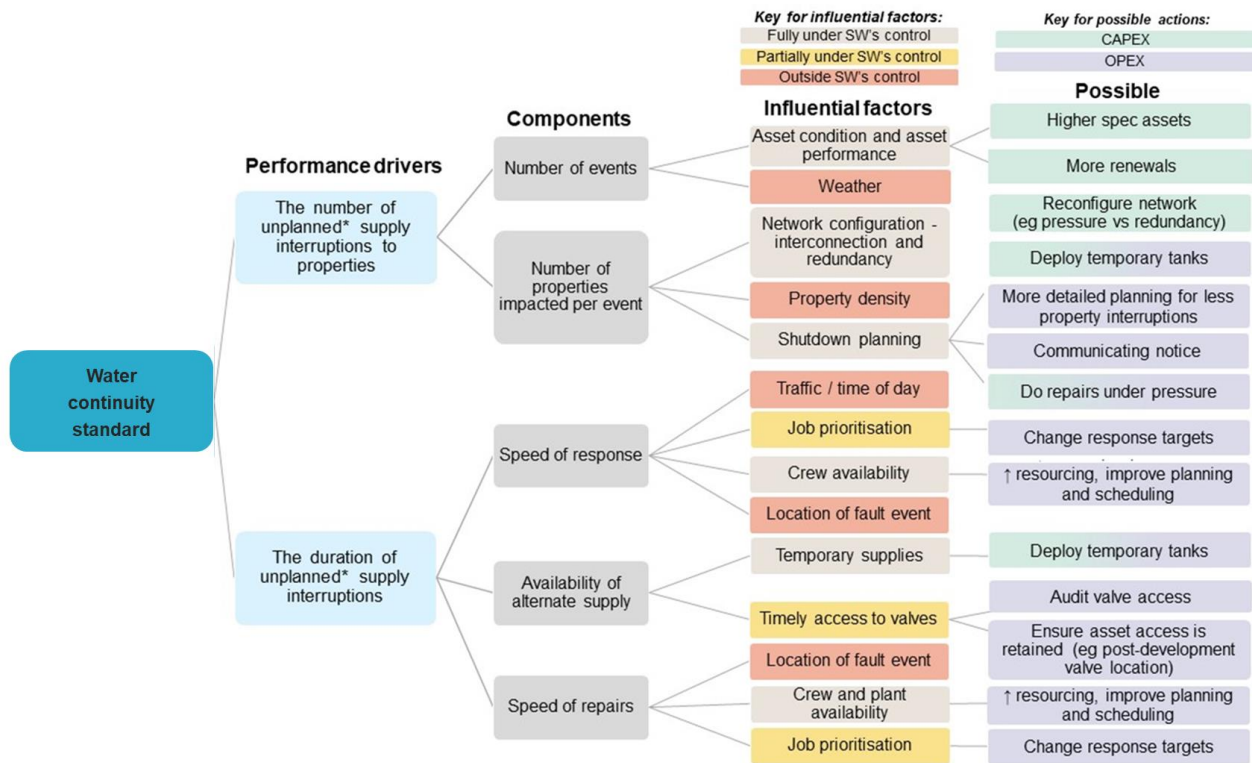
We are further required to use the Water Continuity Optimal Level (ie 9,840 per 10,000 properties unaffected) and Water Continuity Tolerance Band (ie between 9,800 to 9,880 per 10,000 properties unaffected) as inputs to decisions regarding the design, construction, operation and maintenance of its water supply system.

2.1.1 Performance drivers

There are multiple drivers which impact water continuity performance. We note that some of these influential factors are within our control, some are partially in our control and some are not controllable. Planning for the delivery of an appropriate level of service takes these factors into account, regardless of whether they are in our control.

Figure 1 summarises the key drivers of water continuity performance.

Figure 1. Key drivers of water continuity standard performance



As Figure 1 shows, water continuity performance depends upon the number of unplanned interruptions to properties and the duration of these interruptions. In turn, these are driven by five key components:

- **Number of fault events:** This is influenced by the number of water main failures. These are driven by internal and external pipe corrosion, loss of structural support around buried pipes (e.g. due to ground movement) and third-party damage.
- **Number of properties impacted per event:** This depends upon how the network is configured (i.e. whether alternate supply paths exist) and the density of properties on that part of the network (which is increasing in parts of Sydney).
- **Speed of response to events:** This can depend upon fault location, time of day and whether there are higher priority events to respond to. Traffic can have a large influence on this in Sydney.
- **Availability of alternate supplies:** Interruption durations can be limited if it is possible to provide alternate supplies within in a short period (for example, provide temporary supply or quickly reconfigure the network where possible)
- **Speed of repairs:** Similar to speed of response to events, this can depend upon fault location, time of day and whether there are higher priority events to respond to. These activities are, however, separate as first responders are not always repair crews.

2.1.2 Historical performance

Sydney Water has been compliant with the water continuity standard for three of the last four years of this Operating Licence period. Our water continuity performance is summarised in Table 1.

This follows non-compliances in the 2018-19 and 2019-20 financial years where dry antecedent weather conditions during the drought significantly impacted soil moisture, and therefore an increase in water main breaks due to pipe movement.

We note that the return to compliance has only been narrowly achieved as a result of significant efforts to deal with challenges largely beyond our control. The very wet La Niña conditions that dominated from January 2020 until recently have not resulted in a large reduction in the number of properties being impacted by long outages, as we might have expected based on previous assessments (eg, historically, leaks and breaks are often associated with very dry periods or transitions between wet and dry conditions). Understanding the drivers of performance will be essential for understanding the potential impacts of climate change on this standard into the future. A likely return to El Niño conditions means that Sydney Water will continue to be challenged to meet this minimum standard in the forthcoming Licence period.

Table 1. Summary of Sydney Water's compliance against the performance standard for water continuity during this Operating Licence period.

Standard	2019-20	2020-21	2021-22	2022-23
At least 9,800* per 10,000 Properties (in respect of which Sydney Water provides a Drinking Water supply service) receive a Drinking Water supply service unaffected by an Unplanned Water Interruption.	9,763 Non-compliant	9,808 Compliant	9,833 Compliant	9,812 Compliant

* Note: In the current Operating Licence the optimal and upper tolerance band targets for water continuity are 9,840/10,000 and 9,880/10,000 properties unimpacted, respectively.

2.2 Water pressure

Under our *Operating Licence 2019-2023*, we are required to ensure that at least 9,999 properties per 10,000 properties receive a drinking water supply service affected by fewer than 12 Water Pressure Failures. A water pressure failure is defined in our licence as when a property experiences a pressure of less than 15 m head of pressure at the customer connection point for a continuous period of one hour or more.

For 'Property Clusters' (ie defined as areas affected by recurring low water pressure in our licence), we are additionally required to:

- review business processes to ensure that new customers are not connected to our drinking water supply, unless the owner is informed of the risk and provided with options to reduce the risk, and
- take steps to minimise recurring water pressure failures, while taking into account customers' willingness to pay for drinking water supply services by 31 October 2022.

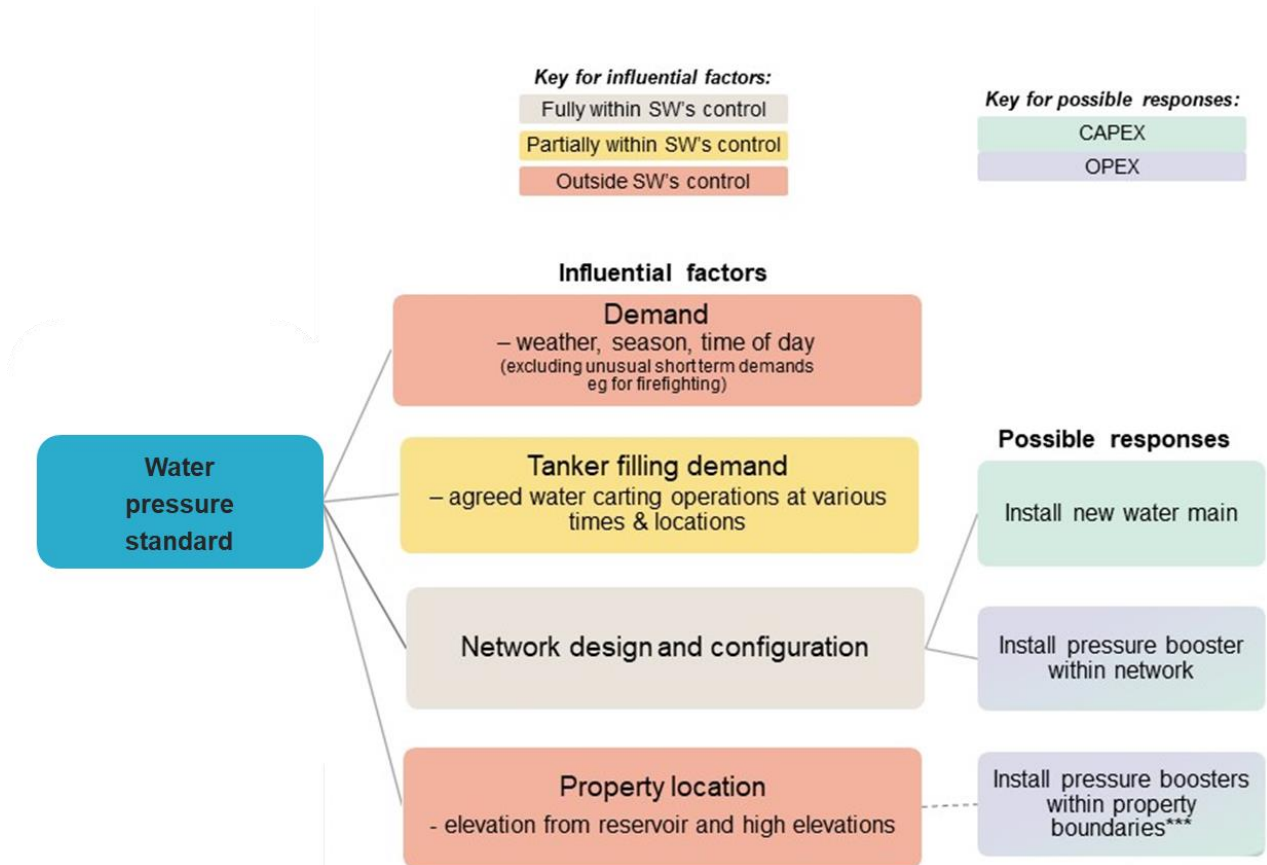
2.2.1 Performance drivers

Water pressure performance largely depends upon:

- **Property specific characteristics:** The most important factor being the height of the connection in relation to the height of the nearest reservoir. Adequate water pressure is usually provided by supplying properties from a reservoir that is significantly higher than the properties.
- **Network pressure:** This is controllable to an extent through pressure regulating valves.
- **Local network demand:** High demand in an area can result in low pressure locally. This can occur in hot, dry weather or when professional water carting businesses fill tankers from hydrants.

The drivers of water pressure performance with respect to the current licence standard are shown in Figure 2.

Figure 2. Key drivers of water pressure standard performance



2.2.2 Historical performance

To date, Sydney Water has performed well against the water pressure standard, with only 52-72 properties a year being impacted by chronic low pressure issues over the current licence period.

This means that only 0.0025% of the total connected properties in Sydney Water’s area of operations have been affected by recurrent pressure issues and are within known areas of our network for low pressure. This highlights robust performance against water pressure standards across the customer base.

Table 2. Summary of Sydney Water’s compliance against the performance standard for water pressure during this Operating Licence period.

Standard	2019-20	2020-21	2021-22	2022-23
At least 9,999 per 10,000 Properties (in respect of which Sydney Water provides a Drinking Water supply service) receive a Drinking Water supply service affected by fewer than 12 Water Pressure Failures.	9,999 Compliant (54 properties impacted in total)	9,999 Compliant (61 properties impacted in total)	9,999 Compliant (52 properties impacted in total)	9,999 Compliant (72 properties impacted in total)

2.3 Dry Weather Wastewater Overflows

Our *Operating Licence 2019-2023* requires us to ensure that in each financial year at least:

- a. 9,928 per 10,000 private properties receive a wastewater service unaffected by an Uncontrolled Wastewater Overflow; and
- b. 9,999 per 10,000 private properties receive a wastewater service affected by fewer than three Uncontrolled Wastewater Overflows.

2.3.1 Performance drivers

At a high level, wastewater overflow performance depends upon:

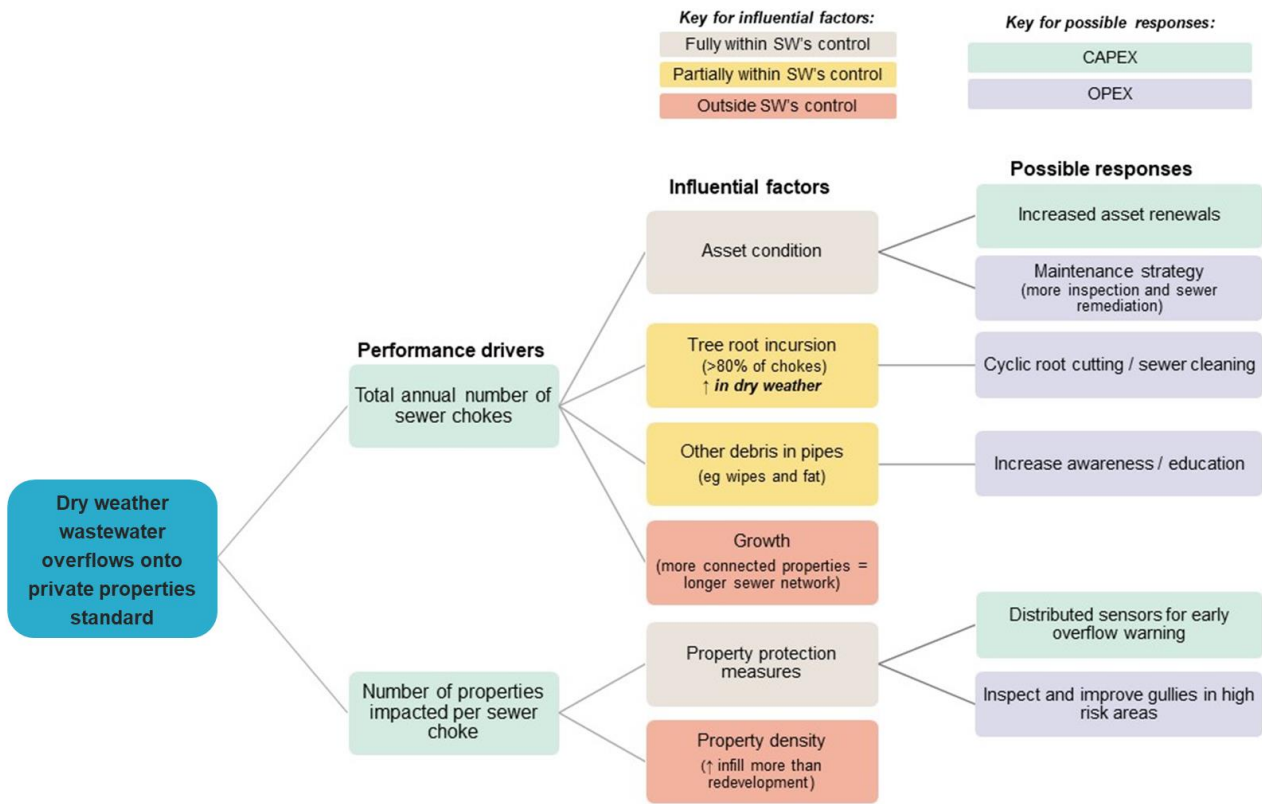
- the number of sewer chokes, and
- how many properties are affected each time.

Across 24,000 kilometres of smaller diameter ‘reticulation wastewater’ assets, we have observed:

- The number of chokes can vary significantly year on year (due to weather impacts).
- Less than half of chokes caused overflows onto private property
- For each choke impacting properties, very few properties are affected each time.

Figure 3 illustrates the various factors which influence the number of chokes and the number of properties affected per choke. Some of these are controllable and some are not. The figure also shows how performance can be influenced.

Figure 3. Key drivers of dry weather wastewater overflow onto private properties performance



2.3.2 Historical performance

To date, Sydney Water has also performed well against both the single and repeat dry weather wastewater overflow standards over the current licence period. Our dry weather wastewater overflow performance is summarised in Table 3.

Table 3. Summary of Sydney Water’s compliance against the performance standards for dry weather wastewater overflows during this Operating Licence period.

Standard	2019-20	2020-21	2021-22	2022-23
At least 9,928 per 10,000 Properties (in respect of which Sydney Water provides a sewerage service but excluding Public Properties) receive a sewerage service unaffected by an Uncontrolled Wastewater Overflow.	9,965 Compliant	9,979 Compliant	9,987 Compliant	9,986 Compliant
At least 9,999 per 10,000 Properties (in respect of which Sydney Water provides a sewerage service but excluding Public Properties) receive a sewerage service unaffected by 3 or more Uncontrolled Wastewater Overflows.	9,999 Compliant (34 properties impacted in total)	9,999 Compliant (8 properties impacted in total)	9,999 Compliant (4 properties impacted in total)	9,999 Compliant (11 properties impacted in total)

