Safe Drinking Water Regulations 2025

Regulatory Impact Statement

OFFICIAL

VICTORIA State Government | Department of Health

Safe Drinking Water Regulations 2025

Regulatory Impact Statement

To receive this document in another format, email the Department of Health's Legislative and Regulatory Reform Team at <legandregreform@health.vic.gov.au>.

Authorised and published by the Victorian Government, 1 Treasury Place, Melbourne.

ISBN/ISSN 978-1-76131-766-8 (online/PDF/Word)

Available at Engage Victoria online platform <https://engage.vic.gov.au>

Contents

Executive Summary

Review of Safe Drinking Water Regulations 2015

The supply of safe, clean drinking water is vital to the health and wellbeing of our communities. It is also fundamental to achieving the Department of Health's ambitious vision of making Victorians the healthiest people in the world.

The *Safe Drinking Water Regulations 2015* (the 2015 Regulations) are due to expire in July 2025.

The Department of Health (the Department) has reviewed the existing Regulations, in consultation with stakeholders, to inform proposals for updated Regulations to be made under the *Safe Drinking Water Act 2003* (the Act). The primary objective of the review is to ensure that the Regulations remain fit for purpose in protecting Victorians from risk of harm from unsafe drinking water.

The Act applies to 20 water agencies – water storage managers[1] and water suppliers.[2] It imposes two key obligations to minimise risks to public drinking water supplies: all water agencies must develop, implement, and continuously improve comprehensive risk management plans (RMPs) that are responsive to changing circumstances; and water suppliers must comply with prescribed drinking water quality standards. The Regulations set out (prescribe) the detail of these requirements. The Secretary of the Department is empowered to monitor and enforce compliance with the Act and the Regulations, and those functions are delivered through the department's Health Regulator.

Victoria's current regulatory framework has been designed for compatibility with the Australian Drinking Water Guidelines[3] (ADWG), which provide a national evidence-based approach to managing the safety and aesthetic quality of drinking water.

Proposed Safe Drinking Water Regulations 2025

The proposed *Safe Drinking Water Regulations 2025* (the proposed Regulations) are published with this Regulatory Impact Statement (RIS). It is proposed to largely remake the 2015 Regulations, with targeted amendments and additions as set out in this Regulatory Impact Statement.

Key updates are intended to improve the operation of the regulatory scheme, by focussing risk management and compliance activity on areas of highest risk, and on risk management practices that are most effective at ensuring the safety of drinking water supplied to Victorians.

The proposed reforms aim to achieve closer alignment between the two key obligations in the Act and the latest scientific evidence and best practice in the ADWG.

---

[1] Defined in Section 3 of the Act – see Glossary in this paper.

[2] Defined in Section 3 of the Act – see Glossary in this paper.

[3] The current version of the guidelines is the National Health and Medical Research Council (NHMRC), Natural Resource Management Ministerial Council (NRMMC), 2011,Australian Drinking Water Guidelines Paper 6 National Water Quality Management Strategy,Commonwealth of Australia, Canberra, viewed 23 August 2024, <https://www.nhmrc.gov.au/file/18462/download?token=nthI3esn>.

The updates reflected in the proposed Regulations aim to optimise the following aspects of the regulatory framework:

- Best-practice risk management: Align RMP requirements with ADWG to improve resilience and management of drinking water quality.
- Clear and comprehensive drinking water quality standards: Incorporate the ADWG's aesthetic and health-based guideline values into the enforceable drinking water quality standards.
- Efficient, risk-based regulation: Support the Health Regulator to adopt a proportionate, risk-based regulatory approach.
- Strengthened regulatory oversight: Set clearer compliance thresholds and targeted regulatory reporting requirements, ensure consistent enforcement of water quality standards and RMP requirements.

Proposed changes to RMP requirements are intended align risk management obligations under the Act and proposed Regulations with ADWG best practice to support the consistent, sector-wide implementation of a structured and systemic approach to risk management, and the supply of drinking water that complies with prescribed standards.

In summary, the proposed changes to RMP requirements include:

- Amendments to provide clarification: to introduce greater specificity about documenting processes for operational monitoring and control, including risk-based asset inspection and maintenance, data review, and monitoring for emerging hazards.
- New requirements for:
  - Documenting critical control points (CCPs) that apply across the entire water supply system from catchment to tap (rather than only those in the treatment process).
  - Documenting improvement plans that address specified matters.
  - Including a commitment to drinking water quality management.
  - Incorporating a microbial health-based targets (HBT) framework in line with the ADWG, with supporting requirements for reporting to the Secretary to the Department where performance does not meet a minimum HBT threshold.
- Removing the current restriction on taking consecutive samples from the same sampling point.

Proposed changes to the drinking water quality standards that align with the ADWG will increase clarity about obligations to ensure that drinking water supplied is safe and pleasant to drink, based on the evidence base adopted nationally.

In summary, the proposed changes to drinking water quality standards are:

- Retain the current prescribed standards for *Escherichia coli* (*E. coli*), total trihalomethanes (TTHMs), and turbidity, but remove the current 'carve out' for 'false positive' detections of *E. coli*.
- Health-based drinking water standards for other characteristics that are directly linked to the health-based guideline values listed in the ADWG, as amended from time to time.
- Prescribed standards for aesthetic characteristics that have guideline values set out in the ADWG, with the exception of chlorine. pH compliance with the standard will require that pH

remains in the range of 6.5 - 9.2 on a rolling annual average basis, with sampling at least once a month. Compliance with all other prescribed aesthetic standards must be met as a rolling average over a 12-month period.

- Requirements for reporting to the Secretary of the Department where guideline values are exceeded.

Establishing robust and clear drinking water quality standards and RMP requirements will improve regulatory oversight – through reported sample results, notifications of non-compliance with standards and RMP audits – and support a risk-based and efficient regulatory approach. As set out in this Regulatory Impact Statement the proposals for prescribed aesthetic standards and associated regulatory reporting have been developed taking into account sector stakeholder feedback.

As flagged in stakeholder consultation conducted in 2024, the proposed *Safe Drinking Water Regulations 2025* will also include provisions to prescribe infringement offences, to give effect to section 47A of the Act, which allows the Secretary to the Department of Health or an authorised officer to issue an infringement notice in relation to a prescribed offence. This power was inserted into the Act through the *Health Regulation Legislation (Regulatory Reform) Act 2024* and came into effect on 1 March 2025.

Option analysis and impact assessment

This Regulatory Impact Statement outlines the options considered to meet the reform objectives and assesses those against stated criteria including the anticipated regulatory impact. As set out in Chapter 9, the reforms reflected in the proposed *Safe Drinking Water Regulations 2025* are put forward on the basis that they best achieve the identified reform objectives.

The RIS uses a multi-criteria analysis (MCA) approach to select preferred options for making Regulations. Options are analysed against four criteria, with the following weights:

1. reducing health risks to water supply (30%);
2. improved regulatory intelligence and oversight (10%);
3. ensuring the ongoing quality of drinking water (10%); and
4. cost to industry and government (50%).

Overall, the proposed Regulations are expected to reduce health risks to water supply, improve regulatory intelligence and oversight, and ensure the ongoing quality of drinking water.

The total estimated cost of the Regulations is $23 million over 10 years, which is about $0.33 per Victorian per year for the next 10 years.

The impact assessment indicates that converting the costs of the proposed Regulations to a break-even amount of population impacted by a contamination event would see the Regulations break-even if an incident impacting 3,508 people was prevented every ten years. Access to safe drinking water is essential for health and wellbeing, and proactive and precautionary risk management is essential to reduce the likelihood that the water supplied may be unsafe or unacceptable to Victorian communities. The impact of poor-quality water can be severe and widespread, and the activities required to monitor and control that risk are

complex, including in light of emerging challenges such as climate change. While water quality in Victoria is generally good, there is a strong rationale for ongoing and evidence-based regulation to maintain quality and drive best practice by water agencies, both day-to-day and in the longer term. This decreases variation in risk management performance and water quality across the State and allows statewide regulatory oversight to monitor and address risks to public health where needed. Without the proposed Regulations - based on the best available scientific evidence - there is an unacceptably high risk of Victorians being exposed to illness from poor quality water.

Responding to this Regulatory Impact Statement

Written submissions are invited in response to this Regulatory Impact Statement. Submissions must be received by 11:59pm on 14 May 2025.

The Department will consider all submissions received in response to this Regulatory Impact Statement in preparing advice to the Minster for Health about the final form of the *Safe Drinking Water Regulations 2025*. A statement will be published when those Regulations are made about the feedback received in response to this Regulatory Impact Statement and how it informed the final updated Regulations.

1. Background

Drinking water safety and regulation in Victoria

Access to safe drinking water is essential to the health and wellbeing of Victorians, and exposure to unsafe water can cause serious injury and death. Regulation of drinking water supply aims to mitigate this risk.

The Victorian drinking water sector

Victoria's water sector consists of different types of agencies responsible for the storage, treatment, and supply of drinking water. The *Safe Drinking Water Act 2003* (The Act) defines two key types of water agencies: water storage managers and water suppliers. The regulatory framework applies to 18 state-owned water corporations and two other statutory authorities – Parks Victoria and Alpine Resorts Victoria.

Water storage managers

Water storage managers store and supply water to water suppliers – see Figure 3, Appendix 1. There are four designated water storage managers in Victoria:

- Melbourne Water supplies both untreated and treated drinking water
- Goulburn-Murray Water, Southern Rural Water and Grampians Wimmera Mallee Water (which operates as both a water storage manager and a water supplier) supply untreated water.

Water suppliers

Most Victorians receive reticulated drinking water (piped water) from one of 17 water suppliers, which each serve a specific geographic region – see Figure 2, Appendix 1. These suppliers are responsible for ensuring their drinking water meets drinking water quality standards specified in regulations. Among these, three metropolitan water suppliers receive treated drinking water from Melbourne Water (water storage manager) and apply additional treatment (secondary chlorination). Fourteen water suppliers apply primary and secondary treatment to untreated water to ensure all customers receive safe drinking water.

Additionally, seven water suppliers also manage regulated water supplies (water that could be mistaken for drinking water, such as untreated piped water for irrigation, stock use or non-drinking domestic uses). The Act and the Safe Drinking Water Regulations 2015 (the existing Regulations) include specific provisions for managing the risks associated with these water supplies.

Victorian drinking water regulation

To mitigate the risk of Victorians consuming unsafe water, Victoria's Safe Drinking Water regulatory framework (the regulatory framework) aims to support continuous improvement in risk-based management of drinking water quality from catchment to consumer, while maintaining transparency by providing the public with objective information about the quality of the drinking water they receive.

The Safe Drinking Water Act

The current regulatory framework was established in July 2004 with the commencement of the Act.

The Act requires water agencies to prepare, implement, review and update a risk management plan (RMP) in relation to the supply of water. The plan must identify, assess and set out steps to manage those risks. Plans are subject to third-party audit for compliance with the Act and audit findings of non-compliance are reported to the Secretary. Note, the Department does not review RMPs to assess their compliance under the Act.

The Act also requires water suppliers to ensure that all drinking water supplied to another person complies with drinking water quality standards specified in the Regulations. These standards are intended to be developed based on the latest version of the Australian Drinking Water Guidelines (ADWG), while ensuring they remain relevant to the needs of Victorians.[4]

The Regulations provide for additional matters to be addressed in water agency RMPs, documents to be made available for inspection during a RMP audit, drinking water quality standards, drinking water sampling requirements and public disclosure of information relevant to water quality in annual reporting.

The Act empowers the Secretary to the Department of Health (the Secretary) to require that water agency RMPs be audited by appropriately skilled auditors approved by the Secretary, and empowers the Secretary to take action to protect public health and otherwise address non-compliance with the Act and the Regulations.

The Secretary's functions under the Act are supported by the Health Regulator Branch in the Department of Health (the Department), which undertakes activities to promote, monitor and enforce compliance with the Act and Regulations.[5] The Health Regulator was established in February 2024, consolidating a large number of health portfolio regulatory functions to enable a best-practice approach to regulation across multiple regulatory frameworks. This allows for risk-based regulation informed by robust regulatory oversight that is targeted using relevant regulatory intelligence and data. This regulatory strategy is aligned to the reform objectives of the review of the existing Regulations (Box 1 below) and will support implementation of the proposed 2025 Regulations.

Related Victorian government regulation and oversight

The Department's role in regulating the supply of safe drinking water is complemented by three government agencies with related responsibilities to effectively plan, manage and regulate Victoria's water agencies (Figure 1).

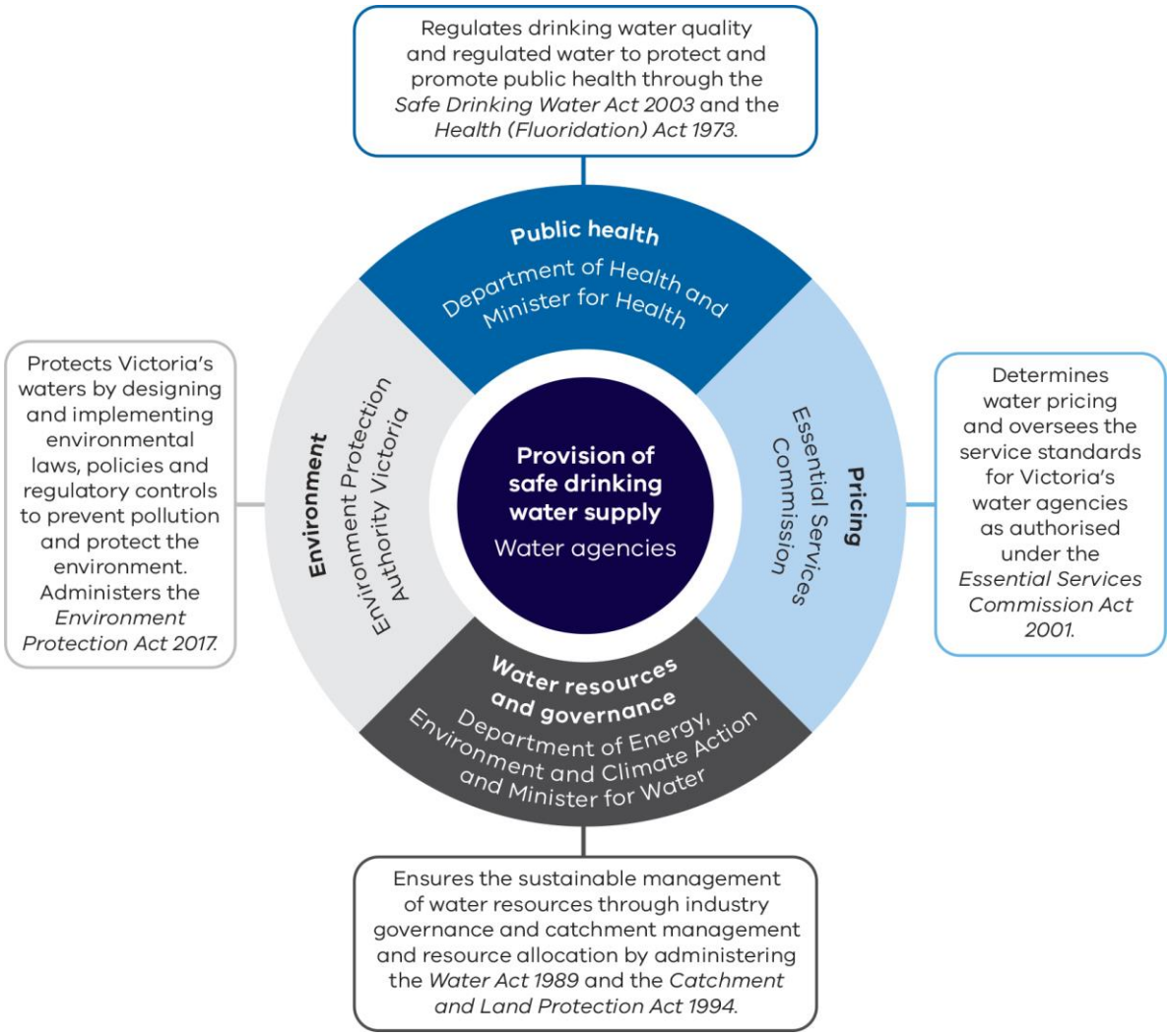
---

[4] Safe Drinking Water Act 2003 Second Reading Speech – '*… the standards and the more detailed aspects of the risk management requirements will be set through regulations recommended by the Minister for Health, after consultation with the Minister for Water, the Minister for Environment and the Treasurer. This will ensure that standards are set in a transparent and appropriate manner, with the community benefits and costs of particular standards clearly identified. The intention is to develop standards based on the latest version of the Australian Drinking Water Guidelines, which is published under the auspices of the National Health and Medical Research Council, whilst ensuring that the standards are relevant to the needs of Victorians*.'

[5] The Secretary delegates certain powers and functions under the Act to staff in the Health Regulator. In addition, the Act provides for the appointment of Authorised Officers, who have the authority to assess and address immediate risks to public health.

Although each government agency has a distinct regulatory role, cross-agency collaboration helps to support health and safety outcomes for Victorian communities. This is reflected by requirements in the Act that the Minister for Health consults with other Ministers before making certain decisions that may impact other functions.[6] The Department is continuing to work with relevant government departments and agencies on design and implementation of the reforms proposed in this Regulatory Impact Statement (RIS), to support that Ministerial consultation.

Figure 1: Victoria's drinking water regulatory system



Designing evidence-based regulation - the Australian Drinking Water Guidelines

As noted above, when the Act was first established there was a clear intention stated during the Parliamentary debate that the drinking water quality standards prescribed under the Act

[6] See section 17(2) and section 53(d) of the Act.

would reflect the ADWG[7] and that detailed elements of RMP requirements would likewise be set out in Regulations to allow transparency and reference to best practice evidence.

The ADWG provide an adaptable, evidence-based framework for managing the safety and aesthetic quality of drinking water from catchment to consumer. They remain the authoritative reference for managing drinking water supplies in an Australian context and are subject to continual revision to incorporate the latest scientific evidence and best practice.

The development and regular review of this framework involves representatives from the National Health and Medical Research Council (NHMRC), water authorities, private industry, universities, health departments, departments responsible for water resources, and others.

As the authoritative national reference, the ADWG provides a best-practice framework for managing the supply of drinking water and determining its quality through adoption of the multi-barrier, 'catchment to tap' risk management approach.[8] A multi-barrier approach is critical in managing risks throughout a drinking water supply chain, particularly in the face of challenges like extreme weather events, infrastructure failures, or contamination events. This approach ensures that if one safeguard is compromised, other protective measures are in place to maintain water quality and protect public health. The proactive risk management approach that currently applies to water agencies' RMP obligations under the Act has been modelled on the ADWG Framework. This ensures that regulations for managing risks to drinking water quality are supported by the ADWG's comprehensive advice to enable consistent application of best practice across all water supply systems, regardless of their source, size or complexity.

For these reasons, which were also set out in the discussion paper published in November 2024, a key focus of the review was to consider how updates to the Regulations might continue and increase alignment between the regulatory framework in Victoria and the best available evidence the ADWG as it continues to evolve (Box 1).

Review of the Safe Drinking Water Regulations 2015

The *Safe Drinking Water Regulations 2015* (2015 Regulations) are due to expire in July 2025.

Under the *Subordinate Legislation Act 1994* (SLA), Regulations in Victoria have a fixed maximum life of 10 years. Before regulations expire, they must be subject to a comprehensive review, known as a 'sunset' review. The review should determine whether the sunsetting regulations should be remade, made in amended form, or allowed to expire. This is intended to ensure that regulations remain fit for purpose.

---

[7] Safe Drinking Water Act 2003 Second Reading Speech – *"… the standards and the more detailed aspects of the risk management requirements will be set through regulations recommended by the Minister for Health, after consultation with the Minister for Water, the Minister for Environment and the Treasurer. This will ensure that standards are set in a transparent and appropriate manner, with the community benefits and costs of particular standards clearly identified. The intention is to develop standards based on the latest version of the Australian Drinking Water Guidelines, which is published under the auspices of the National Health and Medical Research Council, whilst ensuring that the standards are relevant to the needs of Victorians*."

[8] 'No single barrier is effective against all conceivable sources of contamination, is effective 100 per cent of the time or constantly functions at maximum efficiency. Robust barriers are those that can handle a relatively wide range of challenges with close to maximum performance and without suffering major failure'. See page 3 of: NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

The Department has reviewed the 2015 Regulations to inform recommendations for updated Regulations to be made under the Act.

Reform objectives that have informed the review

During consultation conducted as part of the review the Department identified the objectives of proposed updates to the Regulations as shown in Box 1. In this RIS, options for updates are assessed against criteria that reflect these objectives and consider the relative benefits of each option against anticipated costs.

Box 1: Reform objectives in review of 2015 Regulations

- Best-practice risk management: Align RMP requirements with ADWG to improve resilience and management of drinking water quality.
- Clear and comprehensive drinking water quality standards: Incorporate the ADWG's aesthetic and health-based guideline values into the enforceable drinking water quality standards.
- Efficient, risk-based regulation: Support the Health Regulator to adopt a proportionate, risk-based regulatory approach.
- Strengthened regulatory oversight: Set clearer compliance thresholds and targeted regulatory reporting requirements, ensure consistent enforcement of water quality standards and RMP requirements.

Consultation that has informed the review

The review has been informed by stakeholder consultation, as follows:

- The Department met with sector stakeholders in March-April 2024 to discuss the sunset review process and canvass key areas of concern with the 2015 Regulations.
- The Department published a Discussion Paper on Engage Victoria on 13 November 2024, outlining proposed updates to the Regulations, informed by discussion with stakeholders and the Department's internal review of the 2015 Regulations. Written feedback was invited.
- The Department met with sector stakeholders to discuss the proposals canvassed in the Discussion Paper to assist preparation of any submission in response.
- Forty-four stakeholders made written submissions in response to the Discussion Paper and these have all been considered by the Department. In addition, the Department met with water agencies and sector peak bodies that had made submissions, for further discussion.
- The Department issued a survey of water agencies on 25 February 2025, seeking feedback on the anticipated operational impact of specified potential updates to the Regulations. Eighteen agencies responded to the survey.

As noted in this Regulatory Impact Statement, reform proposals have taken account of feedback from stakeholders about potential operational impacts of proposed changes, and

about the range of factors that impact quality of drinking water across the State, and how best practice risk management may be best applied in various circumstances.

For example, quality might be impacted by characteristics of storage and supply systems that vary for reasons of geography or due to historical elements of the treatment system or infrastructure, and expectations and priorities of communities about their water – in particular aesthetic characteristics – can vary. The Department recognises that water suppliers and water storage managers work on an ongoing basis, including in collaboration with each-other, to balance and address these complex issues. As set out in the assessment of reform options the reform proposals have sought to balance the need for clear regulatory requirements with the need to allow for flexibility in how water suppliers and water storage managers can feasibly and effectively fulfil their risk management obligations.

Following this consultation and review, and taking into account stakeholder feedback received, an Exposure Draft of proposed safe Drinking Water Regulations 2025 (proposed Regulations) has been developed.

Proposed Safe Drinking Water Regulations 2025

The proposed *Safe Drinking Water Regulations 2025* are published with this Regulatory Impact Statement. It is proposed to remake the 2015 Regulations, with targeted amendments and additions as set out in this Regulatory Impact Statement.

Purpose of this Regulatory Impact Statement

The *Subordinate Legislation Act 1994* requires that before Regulations are made, a Regulatory Impact Statement must be prepared and published for comment, unless an exemption certificate has been issued.[9]

A Regulatory Impact Statement provides the Government and the Victorian community with an evidence-based assessment of potential impact from proposed regulations, promoting transparent decision-making and offering an opportunity for public input into the design process.

This Regulatory Impact Statement has been prepared in accordance with Better Regulation *Victoria's Victorian Guide to Regulation*.[10] It examines the regulatory options considered in drafting the proposed *Safe Drinking Water Regulations 2025* and evaluates the potential impacts of each against the stated reform objectives and by reference to estimated cost impacts.

This Regulatory Impact Statement also notes that the Department is reviewing the levy that is paid by water agencies under section 51 of the Act, to assist in covering the costs of administering the Act. Section 52 defines the meaning of 'costs of administering the Act' for the purposes of the levy. The proportion of levy that each water agency pays is based on a methodology that the Minister for Health considers fair (section 53(c)) and is subject to

[9] *Subordinate Legislation Act 1994*, see section 7.

[10] Department of Treasury and Finance, 2024, Victorian Guide to Regulation, viewed 30 January 2025, <https://www.vic.gov.au/sites/default/files/2025-03/2024-Victorian-Guide-to-Regulation.pdf>.

consultation requirements in section 53(d) of the Act. Any decision on apportionment will be informed by the final form of the *Safe Drinking Water Regulations 2025* and take into account the anticipated costs to government of administering relevant aspects, as estimated in this Regulatory Impact Statement.

Responding to this Regulatory Impact Statement

Written submissions are invited that address the reforms proposed in this Regulatory Impact Statement. Where possible, please provide reasoning to support your responses. Your submission does not need to be limited to the questions raised. Please ensure that your submission reflects the question you are responding to.

You can respond to the Regulatory Impact Statement by uploading a submission through the Victorian government's online platform, Engage Victoria, at engage.vic.gov.au.

Please read the privacy collection notice on the Safe Drinking Water Regulatory Impact Statement survey on Engage Victora before completing a submission.

The closing date for submissions is 11:59pm on 14 May 2025.

How the Safe Drinking Water Regulations 2025 will be made

Under section 56 of the Act, the Governor in Council may make regulations related to the supply of safe drinking water on the Recommendation of the Minister for Health. The making of any regulations must comply with the requirements of the *Subordinate Legislation Act 1994*, which include requirements for consultation and impact assessment. Under the Act, before submitting a regulation that sets drinking water quality standards, the Minister for Health must consult with the Treasurer and the Ministers responsible for the *Water Act 1989*, *Water Industry Act 1994*, *Parks Victoria Act 2018* and *Alpine Resorts (Management) Act 1997*.

The Department will consider all submissions received in response to this Regulatory Impact Statement in preparing advice to the of the Minister for Health about the final form of the *Safe Drinking Water Regulations 2025*. A statement will be published when those Regulations are made about the feedback received in response to this Regulatory Impact Statement and how it was considered in the process of developing the final *Safe Drinking Water Regulations 2025*.

2. Problem Analysis

Access to safe drinking water is essential for the health and wellbeing of Victorian communities. About 99% of Victorians living in metropolitan Melbourne and 88% of Victorians living in rural and regional areas have access to reticulated drinking water supplies, making it a core public health service that underpins community health, wellbeing and economic productivity. However, because water is an excellent solvent, it can act as a vehicle for contaminants, including microbial, chemical, physical, and radiological hazards. Without effective management, these hazards may compromise the safety and aesthetic quality of drinking water and can pose risks to public health.

Effective management and treatment of the water is therefore essential to reduce risk to health. As set out below, several emerging risks and challenges can increase the inherent risk of the water being supplied, by making maintenance of water quality more difficult. Given the complexity of the risk posed by water and the potentially large scale of harm that can result from unsafe water, robust and precautionary regulation is required to drive continued long-term best practice risk management by water agencies and to ensure there is continued regulatory oversight that meets community expectations. The expiration of the 2015 Regulations would result in a reduction of those regulatory safeguards as compared to the status quo. The remaking of the Regulations is an opportunity to improve on the status quo, to better align the regulatory framework to the best available scientific evidence of what constitutes effective management of water quality.

Risks of unsafe water and the need for regulation

While the standard of drinking water in Victoria is generally high, and examples of major incidents or serious harm are rare, regulation must continually evolve to maintain a robust and precautionary approach, in order to effectively address the risk of harm. This is because of the nature of the potential harm, and the complexity of its potential mitigations and severity of its consequences. In this context, while there are currently generally high rates of compliance, there is a strong justification for strengthening regulatory requirements and regulatory oversight to drive best practice and long-term improvements, given all Victorians rely on water for health and wellbeing, and highly effective proactive risk management is required to minimise the risk of unsafe water causing widespread and significant illness.

Predicting the likelihood of harm to Victorians from drinking water at any particular location or point in time, and identifying and implementing preventative mitigations, is highly complex. There are often multiple interdependent factors that impact the quality of water – including external environmental factors, or failures in treatment process or equipment – and monitoring and optimising a holistic range of effective safeguards is a dynamic and ongoing process. In addition, as noted below, there are overarching ongoing and emerging challenges to the maintenance of high-quality water across Victoria.

The extent of harm caused by unsafe drinking water can be severe, both in the degree of harm that an individual may suffer and in the number of individuals affected. The degree of harm could include serious gastrointestinal illnesses and infections, including up to a severity that requires hospitalisation and has long lasting effects, or exposure to chemical contamination. Further, due to the extensive reliance on reticulated drinking water supplies in Victoria, and

the direct and continuous nature of supply to consumers, contamination events can affect large populations before detection and mitigation measures can be implemented.

Drinking water contamination incidents, particularly those associated with microbial pathogens, can impose substantial economic costs and social impacts. These can arise from increased healthcare demand, lost productivity from time off work, expenses for alternative drinking supplies, and broader disruptions to households and businesses. Economic analysis undertaken following the 2016 Havelock North waterborne disease outbreak in New Zealand (see Box 2) highlights the significant financial burden such incidents can place on communities and public services. This outbreak, which resulted in an estimated 5,500 illnesses and four deaths, incurred costs estimated in 2025 dollars to be $36 million (AUD).[11]

Widespread or long-lasting poor water quality can also undermine public confidence in reticulated water supplies. With the link between drinking water quality incidents and erosion of public trust well established, and studies indicating that more than a third of surveyed respondents in high-income countries self-report concerns about potential harm from drinking water in the next few years,[12] maintaining public confidence in Victoria's drinking water supplies is crucial. A decline in confidence may lead consumers to seek out alternative water that may not be subject to the same quality standards, such as private tank water or bore water, which are not subject to the same quality standards required by regulation. This shift may increase the risk of exposure to untreated or inadequately managed supplies, which pose risks to public health. Loss of consumer confidence in the aesthetic quality of drinking water can also undermine public trust in reticulated supplies and reduce the benefits of public health investments in safe drinking water.

A robust and contemporary regulatory framework that aligns the management of drinking water quality with best practice is essential to ensuring safe drinking water in Victoria. Currently, not all water agencies are consistently achieving best practice risk management, as is evidenced through previous audits of RMP requirements resulting in findings of non-compliance, with one water agency found to be non-compliant for two successive audit periods.[13] These outcomes suggest that parts of the sector are still falling short of minimum expectations regarding risk management, and that there remains a risk where poor implementation could lead to serious consequences. Imposing specific obligations on water agencies to take actions that are known to manage drinking water quality can drive those agencies to adopt best practice. Allowing a regulator to monitor and enforce compliance with those obligations can drive compliance through deterrence (due to the prospect of regulatory sanction). It also supports the regulator to intervene to require specific action to correct identified non-compliance and reduce the risk that water being supplied will be unsafe - for

[11] Figure adjusted to be in terms of 2025 Australian values from Ministry of Health, 2017, The Economic Costs of the Havelock North August 2016 Waterborne Disease Outbreak, New Zealand Government, viewed 14 March 2025, <https://www.health.govt.nz/publication/economic-costs-havelock-north-august-2016-waterborne-disease-outbreak#:~:text=Summary,normal%20activities%20during%20the%20outbreak>. See Box 2 for further details.

[12] Miller, J.D., Staddon, C., Salzberg, A. et al, 2024, Self-reported anticipated harm from drinking water across 141 countries. Nat Commun 15, 7320, viewed 11 March 2025, <https://www.nature.com/articles/s41467-024-51528-x>.

[13] In 2023, audits of risk management plans for the period 1 January 2021 to 31 December 2022 revealed that nine water suppliers were non-compliant with section 7(1) during the audit period. For more details regarding these non-compliances, see Department of Health, 2024, Annual report on drinking water quality in Victoria 2022–23, viewed 3 March 2025, <https://www.health.vic.gov.au/water/drinking-water-quality-annual-reports>.

example the Secretary can issue directions under the Act for water agencies to take specified actions to address a risk to public health.[14] Further, Statewide regulation allows the regulator to monitor and report on issues related to water quality across Victoria and, where appropriate, make recommendations to the Minister for Health on matters related to drinking water.[15] Regulatory oversight can strengthen risk management practices of managing drinking water supplies across the sector to support the consistent delivery of safe, good-quality drinking water to the community.

As scientific understanding and risk management practices evolve, the regulatory framework must remain responsive to address established and emerging risks. The RIS process provides a structured approach to evaluating evolving best practices in drinking water management, ensuring that the Regulations remain effective and fit for purpose.

Box 2: What happens if we fail – Havelock North

In August 2016, a waterborne outbreak of gastroenteritis occurred in Havelock North, New Zealand. The outbreak resulted in an estimated 5,500 illnesses and had possible linkages to four deaths due to campylobacteriosis.[16] The cause of the outbreak was traced to drinking water supplied by two bores. This water was highly likely to have been contaminated by sheep faeces following a period of heavy rain.

The New Zealand government established a public inquiry into the outbreak. While not attributing the cause of the outbreak to any one organisation, the inquiry identified several failings, including:

- Inadequate regulatory approaches to:
  - Applying drinking water standards and following up transgressions
  - Addressing Water Safety Plan non-compliances and opportunities for improvement
- Inadequate drinking water supply management approaches to:
  - Risk assessment of source water
  - Inspection and maintenance programmes
  - Ownership of Water Safety Plans at senior management level.

The outbreak shook public confidence in the supply of safe drinking water and the total economic costs have been estimated to be about $36 million (AUD).[17]

[14] *Safe Drinking Water Act 2003*, see section 34.

[15] These are functions of the Secretary under section 27 of the Act.

[16] Department of Internal Affairs, 2017, Report of the Havelock North Drinking Water Inquiry - Stage 2, New Zealand Government, viewed 14 March 2025**,** <https://www.dia.govt.nz/Report-of-the-Havelock-North-Drinking-Water-Inquiry---Stage-2>.

[17] Figure adjusted for inflation from Ministry of Health, 2017, The Economic Costs of the Havelock North August 2016 Waterborne Disease Outbreak, New Zealand Government, viewed 14 March 2025, <https://www.health.govt.nz/publications/the-economic-costs-of-the-havelock-north-august-2016-waterborne-disease-outbreak#:~:text=Summary,normal%20activities%20during%20the%20outbreak.>.

Emerging risks and challenges – the increasing risk of unsafe water

As noted above, managing risks to drinking water quality is an inherently dynamic practice. Source water is subject to environmental and climatic fluctuations, and water quality may continue to change as water travels through the distribution system after primary treatment.

Climate change

Climate change poses a significant risk to Victorian drinking water supplies. In the coming decades, Victoria is projected to become hotter and drier, with more frequent and severe bushfire events likely to occur. These changes are also expected to result in more extreme rainfall and storm events.[18] Changes to water quantity resulting from floods and storms can result in significant local changes to water quality. The 2022 Victorian floods demonstrated the profound impact that such extreme weather events can have on drinking water supply systems. This incident prevented the collection of drinking water samples at some localities due to access issues, diminished the effectiveness of drinking water treatment due to changes in source water quality, and introduced harmful contaminants. As a precaution, boil water advisories were also issued in some flood-affected communities due to potential contamination risks. Major climatic fluctuations, such as floods, have strong links to drinking water disease outbreaks[19] and can require modifications to risk management planning, asset resilience, operational planning and water treatment infrastructure.

Population growth

The World Health Organization's (WHO) *Guidelines for Drinking Water Quality* notes that the impacts of these climate extremes on water quality will be particularly significant in regions experiencing population growth or rising water demand.[20] Victoria's rapidly growing population is placing greater demand on drinking water systems and complicating the task of maintaining drinking water quality. The state's population is projected to almost double by 2051, which will result in a significant increase in drinking water demand. Melbourne's recent growth alone has driven a 10% rise in annual water use over just five years.[21] The expansion of supply systems to accommodate this population growth will place additional pressure on land use planning around water sources and drinking water supply infrastructure. Increased development and human activity in catchments may also increase risks of contamination, necessitating stronger protections and management strategies to safeguard drinking water quality.

---

[18] Department of Energy, Environment and Climate Action, 2019, Victoria's Climate Science Report 2019, viewed 17 March 2025, <https://www.climatechange.vic.gov.au/victorias-changing-climate>.

[19] NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

[20] WHO, 2022, Guidelines for Drinking-Water Quality: Fourth edition incorporating the first and second addenda, Geneva, WHO, viewed 24 February 2025, <https://iris.who.int/bitstream/handle/10665/352532/9789240045064-eng.pdf?sequence=1>.

[21] Melbourne Water, 2024, Our water supply challenges, viewed 5 March 2025, <https://www.melbournewater.com.au/water-and-environment/climate-change/our-water-supply-challenges>

Ageing infrastructure

Much of Victoria's drinking water supply infrastructure is ageing and requires regular maintenance to ensure the reliability and effectiveness of its performance. Inadequate maintenance and inspection of ageing infrastructure and assets can increase the likelihood of contamination events. A departmental review of drinking water quality incidents from 2019-20 to 2022-23 has identified an increase in incidents linked to poor asset performance.[22] The inquiry into the outbreak in Havelock North (described in Box 2) also found that failing to regularly inspect and maintain infrastructure contributed to the disaster, which highlights the potential consequences of poor asset management.

Scientific understanding

The scientific understanding of drinking water contaminants is continually evolving and revealing new pollutants and hazards. For example, the NHMRC first published drinking water health-based guideline values in the ADWG for per- and polyfluoroalkyl substances (PFAS) in 2018. Guidance on safe levels of PFAS to minimise exposure levels through drinking water is critical in light of their enduring presence and potential health risks. The NHMRC is currently in the process of reviewing these PFAS values with a view to updating them. Following the release of proposed new health-based guidance values for PFAS in October 2024 for public consultation, the final guidance relating to these values is expected to be published in the ADWG in April 2025.[23] The evolving scientific understanding of what constitutes safe drinking water, as highlighted by the ongoing PFAS review, underscores the need for water agencies to continually update their practices in line with emerging scientific evidence. This also reinforces the need for a regulatory framework that can adapt to emerging scientific evidence. Ensuring that new and emerging water quality hazards are identified and monitored in line with the best available scientific evidence is essential to maintaining relevant and effective drinking water quality standards.

Risk of unsafe water if there are no Regulations

This section outlines the problems with the base case, in which there are no Regulations made. In the absence of Regulations under the Act, core obligations under the Act on water agencies to manage risks to the supply of drinking water would remain in place. However, risks of unsafe water would be increased compared with the current status quo, as regulation would be less effective at reducing the risk.

Without Regulations, water suppliers and water storage managers would still be required to prepare, implement and update an RMP which would be required to include:

- a detailed description of the system of supply
- the risks to the quality of the water
- an assessment of those risks, and

[22]Department of Health, 2024, Annual report on drinking water quality in Victoria 2022–23, viewed 3 March 2025, <https://www.health.vic.gov.au/water/drinking-water-quality-annual-reports>.

[23] NHMRC, 2024, Australian Drinking Water Guidelines: Public consultation now open, viewed 11 March 2025, <https://www.nhmrc.gov.au/about-us/news-centre/australian-drinking-water-guidelines-public-consultation-now-open>.

- the steps to be taken to manage those risks.

The Secretary can require that a RMP be audited by an approved auditor under the Act. Audits would be conducted by third-party auditors approved by the Secretary. Auditors would be required to notify the Secretary of any audit finding that an RMP does not comply with the Act. However, there would be no required content for the RMP, other than those listed above as required under the Act. This would substantially weaken the value of the audit process and reduce regulatory oversight of risk management by water authorities. Audits would be less robust with only high-level requirements to assess against. This would mean the grounds for an audit finding of non-compliant would be reduced so notifications to the regulator about deficient RMPs would be less frequent and the regulator would lack regulatory intelligence about substandard risk management practices by water agencies.

Water suppliers would be required to comply with water quality standards and report non-compliance, but there would be no specific standards prescribed for the purposes of these provisions so this core obligation in the Act would be ineffective. Further, the regulator would lack visibility of timely data on water that may pose a risk to human health. The only sources of intelligence for the regulator would be:

- audit results, which would be less robust;
- requests for information needed to allow the Secretary to perform its functions under the Act; or
- obligatory notifications to the Secretary by personnel at a water authority who form the view that water may pose a risk to human health or cause widespread complaint.

These sources of information are indirect and retrospective and may not include pertinent information. More detailed reporting linked to risk indicators is required to support targeted, risk-based and proactive ongoing regulatory monitoring.

Without Regulations there would be no enforceable regulatory requirements on water suppliers for collection and analysis of water samples or for reporting results of analysis to the Secretary. As noted above, this would substantially reduce the regulator's visibility of water quality and severely undermine regulatory oversight. Together with the absence of specific requirements to establish and document a water sampling program it could also mean significant variation or deterioration in the level of monitoring conducted by agencies which could render water quality substantially less reliable or less safe.

In the absence of regulatory requirements, it is anticipated that water agencies would continue to rely on the ADWG and align their operations to that best practice evidence in order to manage water quality and minimise risk to consumers. However, as outlined in the Problem Analysis section, given the nature of the risks to health and the scale and severity of potential harm from unsafe water, enforceable regulation is required to proactively and preventatively manage risk to Victorians to a consistent standard across the State. Therefore, these obligations are inadequate as targeted regulatory safeguards to manage the risk to the health of Victorians.

Residual risks of unsafe water under the current regulatory framework

This section outlines the problem with the status quo, in which the existing Regulations remade in exactly the same form. Despite the safeguards put in place, incidents that impact the quality of drinking water can and do happen. Unsafe drinking water can pose a serious risk to the health of Victorians, and the regulatory framework is designed to minimise that risk. Examples from other jurisdictions demonstrate the scale of illness that can result from a failure to ensure the supply of safe drinking water. While Victoria's regulatory framework aims to minimise these risks, effective risk management requires ongoing assurance that drinking water systems are resilient to emerging challenges and that their performance remains well understood. As scientific knowledge, monitoring practices and technology evolve, continuous improvements in risk assessment and management are necessary to maintain and improve the ongoing supply of safe drinking water to Victorian communities.

The greatest risk to public health from drinking water is the presence of disease-causing microorganisms (pathogens) in the water.[24] To address this risk the existing Regulations improve somewhat on the base case described above, by setting some detailed requirements for how water agencies must document systems and processes for management of risk generally (explored more in Chapter 5) and management of microbial risk specifically (explored further in Chapter 7). The existing Regulations also set more detailed requirements for monitoring for microbial risk by setting prescribed drinking water standards (explored further in Chapter 8) and setting requirements for how boundaries are set for the purposes of a water sampling program (explored further in Chapter 6).

Approaches to managing microbial risk have significantly evolved since the regulatory framework was first established in 2004. Initially, and in accordance with the prescribed drinking water quality standards specified in the 2005 Regulations, microbial safety was primarily assessed through compliance with *E. coli* as a performance indicator of faecal contamination. However, this approach has limitations, as the absence of *E. coli* does not confirm sufficient protection against all microbial hazards, particularly protozoa and viruses, which may be more resistant to traditional disinfection methods. The ADWG now emphasises a more comprehensive risk-based approach, incorporating microbial HBTs to ensure that treatment processes effectively reduce pathogens, including protozoa, bacteria, and viruses, to an acceptable health-based risk level.

The NHMRC introduced microbial HBT guidance in 2022, which is based on the best available Australian data and uses different assumptions to other commonly used industry references such as the 2015 Water Services Association of Australia's (WSAA) *Manual for the application of health-based targets for drinking water safety*.[25] Despite this, approximately 79% of the sector has yet to fully incorporate the ADWG's microbial HBT framework, with approximately 14% of agencies having no current plans to transition.[26] The ADWG notes that all waterborne

[24] NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

[25] Water Services Association of Australia, 2015, Manual for the Application of Health-Based Targets for Drinking Water Safety, Sydney.

[26] These percentages are based on a survey with 18 out of 20 water agencies responding.

disease outbreaks are preventable when appropriate controls are in place.[27] Ensuring that treatment processes achieve the required pathogen reductions is a critical component of preventing waterborne disease outbreaks. The current rate of sector transition to the ADWG's microbial HBT framework means water agencies may be applying less rigorous or scientifically relevant treatment targets. As a result, system resilience may not be optimised to reflect the latest evidence and best practice in managing microbial risks, potentially increasing risks to public health. Given the current gaps in sector-wide adoption, regulatory intervention may therefore be required to drive broader implementation of microbial HBTs outlined in the ADWG and reduce residual risks to public health.

Under the regulatory framework, the Act empowers the Secretary take action to protect public health, if they believe that there is a risk to public health. Exercising these powers effectively requires access to relevant and timely data to support proportionate, risk-based, and evidence-based decision-making. The data currently reported to the Secretary does not allow optimal assessment of potential or emerging risks to determine whether regulatory intervention is necessary to protect public health. While Victoria's regulatory framework outlines reporting obligations for water agencies, inconsistencies in data availability and sharing may limit the Health Regulator's ability to identify trends, respond proactively to contamination events, and ensure compliance with best-practice risk management. Improved data access supports proactive risk management rather than reactive enforcement, ensuring regulatory responses are targeted, efficient, and effective in protecting public health.

While a risk-based approach to managing drinking water quality should prioritise public health risks, the aesthetic quality of drinking water remains a key factor influencing consumer confidence and uptake of reticulated supplies. Changes to water quality, such as those posed by climate change, can significantly impact aesthetic attributes such as taste, odour, and appearance. Without clear regulatory guidance on managing aesthetic quality, there is a risk that aesthetics may not be sufficiently prioritised in water management decisions, including investment planning for improvements. If drinking water consistently fails to meet customer acceptability standards, then it risks undermining public confidence in reticulated drinking water supplies.

If public confidence in reticulated drinking water is compromised, it would not remain the preferred and trusted choice for consumers. This means that customers may seek alternative sources for drinking water, which may increase the risk to public health. This in turn means that reticulated drinking water would be supplied, requiring significant investment in safety, but not used as drinking water. This would be an inefficient outcome as the investment in bringing the water up to a safe drinking standard would effectively be wasted if the water was not used for drinking. Given the role of aesthetics in shaping public perceptions and drinking water choices, dialogue with the community may be necessary to understand their expectations and determine an appropriate benchmark of what constitutes aesthetically pleasing drinking water

The Act recognises that aesthetic acceptability is complex, and it may be appropriate to vary a regulatory aesthetic standard in some circumstances, including in consultation with a community, to tailor operational focus and investment on meeting foundational health targets

[27] NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

and meeting the aesthetic preferences of the community. Objective, evidence-based aesthetic standards provide a State-wide benchmark for aesthetic performance and a foundation for any decisions about a variation. Without that, investments may not be effectively targeted and communities will not be optimally informed about what to expect in terms of aesthetic performance.

Failure to modernise and strengthen Victoria's regulatory framework in the face of the above emerging risks and challenges could lead to serious public health, economic, and social consequences. The complexity of threats to drinking water quality requires a regulatory framework that is both contemporary and responsive. An up-to-date understanding of these risks is essential to enable effective regulatory intervention, ensuring the framework can appropriately guide, incentivise, and enforce any necessary improvements by water agencies. Applying contemporary risk management practices to drinking water management, supported by a strong regulatory framework, will help prevent incidents before they occur and maintain public trust in the safety of Victoria's drinking water supply.

3. Objectives

While the Act does not include an Objectives provision, when the Safe Drinking Water Bill 2003 was introduced into Parliament, its objectives were set out in the Second Reading Speech. Relevant to the Regulations, those objectives included:

- protect public health in Victoria in relation to drinking water supplies;
- create a consistent statewide regulatory framework for drinking water quality;
- establish and implement comprehensive risk management strategies for drinking water quality that covers the overall delivery chain from the catchment to consumer supplies;
- give Victorians access to objective information about the quality of drinking water that they receive.

The objectives in the Second Reading Speech reflect the inherent risks posed by unsafe water and the need for a robust regulatory framework to safeguard Victorians (see below).

Section 56 of the Act specifies matters that can be dealt with in Regulations under the Act, to further advance those objectives. In summary, those matters are:

- setting minimum standards for drinking water quality;
- establishing obligations for the sampling, testing, and analysis of drinking water quality;
- requiring documentation of risk management plans and systems;
- defining requirements for approved auditors and compliance assessments;
- requiring reporting and disclosure of information about water-related illness or health risks;
- prescribing infringement offences.

In light of this, the objectives of the Regulations are to:

- minimise health risks from drinking water;
- ensure robust regulatory oversight of drinking water in Victoria;
- ensure drinking water meets minimum aesthetic standards;
- ensure sufficient long-term management of risk to drinking water; and
- efficiently achieve the regulatory objectives.

4. How this RIS considers options for achieving the Objectives

This chapter identifies a range of options (regulatory or otherwise) that could achieve the Victorian Government's objectives (described in Chapter 3), ensuring the ongoing high levels of quality and safety of our State's drinking water. This chapter also sets out the approach taken in the RIS to assessing the benefits and costs of the different options.

As outlined in the Victorian Guide to Regulation, A RIS should consider a range of options to achieve the Government's objectives while ensuring that regulation is efficient, proportionate, and justified. This includes both regulatory and non-regulatory interventions to determine the most appropriate approach.

Interjurisdictional comparison

The ADWG provide a best-practice framework for managing the safety and quality of drinking water supplies in Australia. The ADWG are not mandatory standards and the extent to which they are implemented is at the discretion of each state and territory. Therefore, consideration of how best to incorporate the ADWG into the Victorian regulatory framework has been a key factor in the development of options.

Other jurisdictions in Australia incorporate the ADWG in different ways. For example, South Australia integrates the ADWG within its regulatory framework through a general obligation to observe the ADWG in relation to managing the quality and supply of drinking water. Similarly, New South Wales has endorsed the ADWG, by requiring water suppliers to align their management of potential health risks to the ADWG's framework for managing drinking water quality.

Options not further analysed

As set out in the Problem Analysis (Chapter 2), a robust regulatory framework is required to address the risk posed by unsafe drinking water.

The Act establishes a framework for this by imposing two key obligations on water agencies – to document and maintain risk management processes and activities, and to ensure that water meets foundational prescribed standards. The Act provides for Regulations to set out details for those obligations and related matters. The sunset review of the 2015 Regulations only considered options that are consistent with this framework, and that are within the regulation-making power in the Act. Rather, as set out in the Objectives in Chapter 3 the department is seeking to optimise operation of the existing regulatory framework in the Act.

Large-scale adoption of the ADWG as non-mandatory guidance, as seen in NSW and South Australia, has not been considered appropriate for Victoria. Voluntary guidelines are common as a minimalist alternative approach to regulation. However, as set out in Chapter 2, there are deficiencies in both the base case, where there are no Regulations, and the status quo, where the ADWG has been incorporated only partly or indirectly. The potential variability in risk management and water quality and lack of regulatory oversight under those options is unacceptable, given the extremely high potential magnitude of consequences if a major

contamination event was to occur within a water supply system, and the baseline level of proactive risk management required to effectively monitor and minimise that risk to public health. Lack of regulatory oversight and enforcement was highlighted as a key causal factor in the worst drinking water related contamination event in Canada's recorded history in May 2000, which resulted in seven deaths and thousands of illnesses: '*… the lack of provisions made for notification of results to multiple authorities all contributed to the crisis. The Ministry of the Environment (MOE) noted significant concerns 2 years before the outbreak; however, no changes resulted because voluntary guidelines as opposed to legally binding regulations governed water safety*.'[28]

The base case also reflects principles of co-regulation. Co-regulation involves industry developed and administered codes of conduct or the like with government providing the legislative backing to enable enforcement. The regulatory framework in the Act has elements that approximate this approach, with water agencies broadly having the ability to design their RMPs and water sampling programs to suit the unique characteristics and concerns relevant to their business so long as they comply with the core obligations of the Act and Regulations. This approach supports water agencies to best comply with obligations while allowing them to cater their approach to local conditions. However, the Act is specifically designed so that detail can be specified in the Regulations to set foundational requirements, to ensure baseline risk management and water quality and to enable regulatory oversight. For the reasons set out in Chapter 2 and noted above in relation to voluntary guidance, moving further towards a co-regulatory approach is not considered appropriate.

In summary it is the view of the department that Regulations are required to ensure appropriate risk management is taking place and that steps taken to reduce risk to human health are verified for efficacy. Explicit regulation refined for Victorian conditions and community expectations, backed by the expert guidance of the ADWG is the most appropriate course of action.

Finally, it is noted there are some provisions of the 2015 Regulations that are proposed to be re-made in the same or substantially the same form, and options for changing these have not been considered. They are essentially administrative in nature, setting out the documents required for an RMP audit and the certificate used by auditors to notify the Secretary of the audit outcome relating to compliance with the Act. They are required in their current form to ensure the audit process operates as intended. Chapter 9 sets out other elements of the Regulations which are not subject to detailed analysis in this RIS.

Option identification approach

The department is seeking to optimise operation of the existing regulatory framework under the Act, in line with the objectives set out in Chapter 3. The Department has consulted with Victorian stakeholders, and in particular sector stakeholders, to understand the potential operational impacts of applying elements of the ADWG through regulation.

[28] Salvadori et al, 2009, Factors that led to the Walkerton tragedy, viewed 1 April 2025, <https://pubmed.ncbi.nlm.nih.gov/19180129/>.

As set out below, informed by that consultation, the Department has developed options for how to incorporate elements of the ADWG into the proposed Regulations in a tailored fashion, focussing on the elements of the ADWG that relate to risk management and guideline values for identified water quality parameters.

These elements of the ADWG align closely with two core planks of the Victorian Act which provide obligations for water agencies to:

- establish, implement, review and update RMPs; and
- ensure that water complies with prescribed quality standards.

As set out below, the options considered seek to incorporate the best practice evidence from the ADWG on these matters to improve how the regulatory framework reduces risk to health from the water supply, supports effective regulatory oversight and ensures the ongoing quality of water supplied.

Options analysed

The Department has considered options to address the risks identified in Chapter 2. The options identified in this RIS were informed by extensive consultation with the water sector, peak industry bodies, co-regulators and other interested parties. This process is detailed further in Chapter 1.

The analysis in this RIS focuses on the elements of the 2015 Regulations that were identified for potential substantive improvements. Options incorporating these improvements and options that remake the existing Regulations are both assessed and scored against the base case.

This RIS considers options for four key elements of the Regulations. Options for each element are detailed and assessed in a separate chapter below. Three of these chapters examine proposed regulatory changes that will incur net costs, while one chapter assesses a proposal aimed at reducing regulatory burden.

These four chapters focus on the following topics:

- Risk Management Plans (Chapter 5)
- Water sampling localities (Chapter 6).
- Managing microbial risk (Chapter 7)
- Drinking water quality standards (Chapter 8)

Due to the problems set out in Chapter 2 and detailed further in Chapters 5-8 below, allowing the 2015 Regulations to expire with no replacement Regulations made in relation to these matters is not considered a feasible option.

Chapters 5 and 6 identify and assess two options - a status quo scenario of remaking the 2015 Regulations as they are, and making Regulations on the relevant issue in an amended form. Chapters 7 and 8 identify and assess three options: the status quo and two alternative approaches for amended Regulations. All costs and benefits for options identified are scored and compared against the Base Case of allowing the 2015 Regulations to expire with no replacement Regulations made.

Impact analysis methodology

Approach to impact analysis

The RIS process requires an analysis of the costs of the proposed Regulations against the benefits over the range of options under consideration. In the case of this assessment, the options are considered and assessed using multi-criteria analysis (MCA).

MCA has been chosen as the appropriate tool for assessing the options, as it is difficult to quantify both the costs and benefits of proposed regulatory options.

MCA involves:

- Specifying assessment criteria;
- Assigning a 'weighting' to each criterion;
- Assigning scores for each option in relation to each criterion; and
- Calculating a weighted score for each option.

MCA allows a decision to be made based on the weighted scores. The option assigned the highest weighted score is the 'preferred option'.

Although a degree of subjectivity is inherent in the MCA approach, when applied appropriately, MCA can provide a structured, systematic and transparent framework for comparing options with un-quantified cost and/or benefits. By clearly identifying the basis on which the options have been compared, it allows stakeholders and decision makers to see which factors were considered, the weighting given to different aspects of a decision and the reason for the decision.

Each option for this MCA is scored using a scale from -10 to +10 relative to the base case. A score of zero represents no change in impacts against a criterion for that option compared to the base case. A positive score represents a benefit relative to the base case and a negative score, a cost relative to the base case. Withing each criterion, cost and benefit scores are scaled as accurately as possible to represent the relative difference between options. This means that a score of 4 should represent twice the impact of a score of 2 and half the impact of a score of 8. The relative weights of the criteria are set to reflect the relative importance and magnitude of the impacts of each criterion. The combinations of weights and scores provides a weighted score, which when summed for each option, provides a basis for ranking options and choosing a preferred option.

Criteria and Weighting

The weighted costs and benefits for the MCA have been evenly balanced at 50 per cent each. This aligns with the best practice guidance as recommended in the Victorian Guide to Regulation. These criteria are described in detail in Table 1 below.

Table 1: Cost and benefit criteria

Criteria	Description	Weighting
Cost Criteria		
Cost to industry and government	This criterion combines the costs to water agencies and to government in a single criterion. The cost criterion reflects additional costs to water agencies over the base case such as increased administrative work as well as substantive improvements to drinking water infrastructure. These costs are recovered from customers through water supply charges over time. Costs to government additional costs relative to the base case, which are relatively small and are recovered from water agencies. Ultimately, all costs flow through to customers through water supply charges.	**50%**
Benefit Criteria		
1. Reducing health risks to water supply	This criterion receives the highest benefit weighting as the management, mitigation and reduction of health risks to the supply of drinking water is the primary objective of the Act and Regulations. This criterion represents the realised health benefits to customers over the ten-year life of the Regulations. These health benefits arise from improvements in the day-to-day operations of water agencies in storing, treating, distribution and verification testing of drinking water supplies, which reduce health risks to customers. These benefits are primarily avoided illness from water quality incidents and includes low-level avoided illness from ongoing improvements to water quality as well as the reduced likelihood of major incidents affecting larger numbers of people.	**30%**
2. Improved regulatory intelligence and oversight	This criterion represents the benefits of a better-informed regulator, with appropriate and timely information and powers to regulate the sector. This criterion reflects improvements to the effectiveness of the regulator, such as making more risk-based decisions, which are expected to lead to improvements to both health and aesthetic aspects of water quality over time. This criterion is included to reflect how water quality improvements are achieved (indirectly) over time through the actions of the regulator. This less direct effect is more difficult to estimate precisely, so it is scored under this criterion.	**10%**
3. Ensuring the ongoing quality	This criterion is weighted equally to criterion 2. This criterion reflects the long-term health and aesthetic	**10%**

of drinking water	impacts of the Regulations beyond the life of the Regulations, such as long-term planning and long-lived infrastructure investments which have benefits beyond the life of the Regulations by making the water supply system more robust in the long term. This is especially important due to increasing challenges to raw water quality over time due to climate change, population growth, land use changes and aging infrastructure. This criterion also reflects improvements to the aesthetic quality of water during the life of the Regulations. Improvements to the aesthetic quality of water are expected to encourage the take up of drinking water, providing greater convenience and enjoyment to customers as well reduced health risks relative to alternatives to reticulated drinking water. This is also expected to improve the efficiency of investments in drinking water as it is used for its intended purpose.	

5. Options for Risk Management Plans

The RMP requirements set out minimum expectations for water agencies in applying a structured, risk-based approach to managing the supply of drinking water and regulated water from catchment to consumer. They are central to the regulatory framework's focus on preventing risks to public health. Compliance with RMP requirements may be subject to a third-party audit at the direction of the Secretary. The audit process provides regulatory oversight of the RMP content, assesses compliance and helps identify gaps in a water agency's risk management processes – supporting continuous improvement in both risk management practices and the RMP. This chapter of the RIS assesses options including updating the Regulations to strengthen alignment of Victoria's regulatory framework with the ADWG.

The nature and extent of the problem to be addressed

Consumption of contaminated drinking water poses significant risks to public health. RMP requirements are a key regulatory mechanism to ensure water agencies identify, assess, and manage risks to drinking water quality from catchment to consumer. These risks may arise from various points in the water supply networks, including land use contamination, changes in source water quality due to environmental conditions, underperforming treatment systems, and ingress following depressurisation events within the distribution network. Importantly, a proactive risk-based approach must systematically identify, assess, and address a broad range of risks – including the effective management of incidents should they occur.

Keeping pace with emerging risks is a fundamental component of best-practice risk management for drinking water quality, as scientific understanding of water-related health risks continues to evolve. As noted in Chapter 2, PFAS represent a chemical risk where the science on potential human health impacts is still evolving. Contamination risks are also shaped by local environmental conditions, such as climate variability, extreme weather events, and changing source water quality. These climate-related risks are expected to place increasing pressure on ageing assets within Victoria's drinking water supply networks.

Rising temperatures posed by climate change may also present an emerging operational risk by creating conditions that support the growth of opportunistic pathogens in drinking water supplies, such as *Naegleria fowleri*.[29] This pathogen can develop within biofilms in the distribution system if a proactive approach to water quality management is not taken.

Effectively managing risks to drinking water quality requires visibility over system performance and resilience at key points throughout the entire supply system – from source to consumer. Without a clear understanding of where control can be most effectively applied, there is a risk that critical points of vulnerability may go undetected. Critical Control Points (please see Box 3 for a definition) represent those points in the supply system where control is essential to protect public health. The ADWG outline a best practice approach in which CCPs may be

[29] *Naegleria fowleri* is a brain-eating amoeba that enters the central nervous system via the nasal cavity where it can cause a fatal condition called primary amoebic meningoencephalitis.

located anywhere in the system, provided that the control applied is measurable, verifiable, and capable of preventing or minimising the risk. Limiting the definition or application of CCPs too narrowly – such as to treatment processes only – may hinder agencies from considering CCPs more broadly across the system. This could result in missed opportunities to identify and control significant risks in areas such as catchments, storage, or distribution.

Managing CCPs, like many other aspects of drinking water supply operations, requires evidence-based decision-making informed by data. Understanding how risks evolve over time also requires consistent, structured data review. Failure to prioritise data review may limit an agency's ability to monitor system performance, reduce resilience to emerging threats, and weaken the evidence base for operational decision-making.

The issues identified above and in Chapter 2 reflect the evolving nature of risks to drinking water quality and supply. As scientific understanding advances, climate impacts intensify, and infrastructure ages, the challenges faced by the sector continue to shift. In this context, risk management planning provides a structured framework to anticipate, assess, and manage these risks from catchment to consumer. The RMP requirements form the foundation to building resilience to the hazards identified in this RIS, ensuring that the public health risks associated with drinking water are proactively managed through a clear and systematic approach.

The absence of clearly defined regulatory requirements may contribute to observed inconsistencies of the application of best practice risk management across the sector. The Department recognises the need for sector-wide uplift to achieve a consistent baseline standard. This is reflected in 2023 audit outcomes with 9 out of 23 audited agencies found to be non-compliant in at least one aspect of their RMPs in the audit period.[30] The absence of clear regulatory requirements reduces the effectiveness of RMP audits by limiting the availability of objective compliance benchmarks. This weakens the rigour and consistency of audits and the Health Regulator's ability to enforce consistent standards of practice. As a result, deficiencies in RMPs may go undetected, limiting the generation of regulatory intelligence needed to identify systemic risks and intervene proactively. Collectively, these gaps increase the potential for substandard risk management practices to persist, heightening the risk of drinking water quality incidents that may impact public health.

The base case

Under the base case of no Regulations, the Act would still require water agencies to prepare, implement and review a RMP in relation to the supply of water. The RMP must detail the system of supply, identify and assess risks and set out steps to manage those risks. The Secretary would retain the power to require an RMP to be audited by an approved auditor. However, without specific regulatory requirements for RMP content, the principles-based requirements in the Act would leave substantial discretion to water agencies in how they interpret and apply risk management principles. While auditors could assess RMPs against best

[30] Department of Health, 2024, Annual report on drinking water quality in Victoria 2022–23, viewed 26 March 2025, <https://www.health.vic.gov.au/water/drinking-water-quality-annual-reports>.

practice principles from the ADWG, in the absence of enforceable Regulations, there would be no legal basis to require water agencies to comply with specific risk management practices.

This lack of regulatory clarity would have several implications:

- Inconsistent application of best practice risk management: agencies could have varying approaches to risk identification, monitoring, and mitigation, leading to inconsistent protection of drinking water quality across the sector
- Weaker audits: without defined compliance benchmarks, audits would be less rigorous, and the Health Regulator would have reduced ability to enforce consistent risk management practices
- Reduced regulatory intelligence: fewer deficiencies in RMPs would be identified and reported, limiting the Health Regulator's ability to detect systemic risks and take regulatory action where necessary
- Higher potential for drinking water quality incidents: with weaker regulatory oversight, substandard risk management practices may go unnoticed, potentially increasing the likelihood of drinking water contamination events that may pose a risk to public health.

The status quo

The 2015 Regulations specify matters that must be documented in an agency's RMP for the purposes of section 9(1)(e) of the Act. These requirements include prescriptive elements such as documenting CCPs relevant to treatment processes, as well as addressing established risks to human health (r 8(3)). While some agencies may consider emerging risks as part of their response to regulation 8(3), there is no explicit requirement to document the processes used to identify and assess such risks. In addition, the current CCP requirements are needlessly restricted to treatment processes, which is inconsistent with the ADWG, where CCPs may be applied at any point in the supply system where control is essential to protect public health.

The Regulations also include principle-based provisions, such as those in Regulations 8(1)(g) and 8(1)(h), which outline broad expectations related to having an asset inspection and maintenance program, without explicitly prescribing these as core requirements.[31] Regulation 8(1)(h) also relates to the review of short-term and long-term data, a requirement supported by other provisions, including 8(1)(d), 8(2), 16(h) and 16(j).

The principle-based elements of the 2015 Regulations do not provide clearly defined requirements for agencies. This places greater reliance on regulatory guidance to clarify expectations. Current guidance frequently references relevant chapters and sections in the ADWG to assist in interpreting regulatory intent. Notwithstanding the value of the ADWG, other risk management schemes may also be applied as complementary measures by water agencies, provided they comply with the regulatory framework.

[31] Current guidance issued to the sector to support compliance with regulation 8(1)(h) states that activities to monitor and manage hazards and risks 'may include […] asset inspection programs.' See Department of Health, 2015, Guidance – Risk Management Plans, State Government of Victoria, viewed 20 March 2025, <https://www.health.vic.gov.au/water/guidance-notes>.

Currently, the Health Regulator initiates RMP audits on the entire sector approximately every 2 years. Due to a lack of regulatory information gained through the requirements of the 2015 Regulations, regulatory intelligence is too limited to effectively apply a risk-based audit process, such as targeting particular agencies or areas of the RMP for auditing. The principle-based nature of the 2015 Regulations places reliance on auditors to exercise their professional judgement in assessing compliance with some core risk management practices. To support greater consistency, guidance provided to auditors maps all RMP auditable elements to the relevant chapters in ADWG's framework for management of drinking water quality. While this approach provides flexibility to align with evolving best practice, it can also lead to inconsistency in the interpretation and application of regulatory requirements across the sector. This, in turn, may affect the comparability of audit outcomes and the uniformity of risk management standards across water agencies.

The current third-party audit framework means the Department does not assess individual RMPs to determine compliance. Instead, compliance is assessed on the outcomes of audits conducted by approved third-party auditors, with audit outcomes informing regulatory intelligence relating to RMPs. In this context, vague or inconsistently documented RMPs reduce the quality of audit findings and weaken the Department's ability to identify and respond to sector-wide or systemic risks.

Box 3: What is a critical control point?

The 2015 Regulations define a Critical Control Point (CCP) as an 'activity, procedure or process at which control can be applied, and the effective operation of that control is essential to prevent a hazard that may arise to human health or reduce the hazard to an acceptable level.'

In practice, CCPs are specific points or features in the water supply system where corrective actions can be taken to ensure that unsafe water is not supplied to consumers. Given their criticality in an operational monitoring program, CCPs also direct operational resources to where they are needed most.

The 2015 Regulations require that CCPs, their associated critical limits, and the actions taken when those limits are reached to be documented in the RMP. It is also considered best practice for each CCP to include target criteria:

- **Target criteria**: A performance goal that represents control of the process. Exceedances can enable corrective actions to be taken to prevent breaching a critical limit
- **Critical limit**: A point that represents a loss of control of the process that presents an unacceptable risk to public health. Breaching a critical limit should result in immediate corrective action to regain control of the process.

To enable target criteria and critical limits to be set, CCPs must have measurable parameters. CCPs should also be monitored regularly, preferably continuously (e.g. online monitoring wherever possible, though it is not required), and systems should be in place to alert operational staff of any adverse results.

Identification of options

Option 1 – Remake the 2015 Regulations

Remaking the Regulations would retain the current RMP content requirements to support the audit process. This includes retaining principle-based RMP requirements in the Regulations for areas of risk management practice that might be of interest to the Health Regulator. As previously identified, where the Regulations do not specify detailed RMP requirements, sector guidance plays a key role in supporting compliance for water agencies and informing compliance assessments for auditors. This guidance often references the ADWG.

Option 2 – Strengthen RMP requirements

Option 2 provides clearer and contemporary alignment of RMP requirements with best practice in the ADWG. Option 2 seeks to maintain flexibility where practical, while adding specificity to comply with core elements of best practice identified in the ADWG Framework. The proposed RMP requirements would include documenting the processes or the process relating to the following four obligations:

1. **Assessing emerging or potential risks to human health arising from water contamination.**
2. **A risk-based asset inspection and maintenance program to ensure identified hazards and risks are managed appropriately.**
3. **The short-term and long-term review of data to inform the management of water quality.**
4. **Assessing, identifying and documenting CCPs across the entire water supply system.**

While the Department understands that water agencies already undertake risk management activities that relate to the proposed changes outlined below to some extent, these changes are intended to remove ambiguity in regulatory expectations. These changes are expected to elevate risk management practices for some water agencies, particularly with regard to using data to better understand risks and system performance, while also building resilience to and awareness of climate-related risks.

Improved clarity and specificity of RMP obligations would provide the Department with better regulatory intelligence by enabling more meaningful and precise data collection from RMP audits. The changes also facilitate a more targeted approach to RMP audits by enabling auditors to focus on specific elements of a water agency's RMP that may present as high risk. This could include elements relevant to noncompliance, or the successful implementation of required RMP changes identified following a drinking water quality incident.

Under this option, the changes outlined above would apply to water agency RMP requirements. Of the requirements, number four relating to CCPs presents a novel requirement for two regional water storage managers who do not operate treatment processes. The other requirements are broadly aligned to existing RMP requirements due to the nature of the ADWG as reflecting the accepted best practice in acquitting obligations under the Act and are adopted in practice by most agencies, with varying degrees of maturity across the sector. Including these requirements in the Regulations will make these obligations explicit and enforceable.

Assessing the options

This section assesses the options presented against the multi-criteria analysis criteria outlined in Chapter 4. All options are assessed against a base case of no Regulations. The base case is scored at zero and is the baseline that options are compared against.

Reduction in risks to water supply

Option 1 – Remake the 2015 Regulations

The current 2015 Regulations provide a framework for RMP requirements to facilitate the management of contamination risks that may impact public health. While the Regulations are not fully prescriptive, they provide clearer expectations than the broad principle-based obligations in the Act. Without the Regulations, the regulatory framework would largely rely on agencies aligning their risk management practices with non-binding guidance such as the ADWG.

The Regulations provide a consistent baseline for auditors to assess RMPs against. However, this benefit is limited, as even in absence of specific regulatory requirements, it is unlikely that water agencies would significantly change their RMPs from their existing format and contents in the short to medium term. Without clear and enforceable standards, there is a risk that over time, water agencies' RMPs may drift further from best practice as described in the ADWG. For this reason, remaking the Regulations is somewhat preferable to the base case.

Option 1 is scored at +1 relative to the base case.

Option 2 – Strengthen RMP requirements

Under this option, agencies would be subject to the existing requirements as described by Option 1.

The short-term and long-term review of data requirements would position agencies to leverage advancements in data capture and analysis, ensuring evidence-based decision-making remains central to risk reduction strategies. This may include better processes for using operational data to identify immediate or medium-term issues, such as treatment process deviations or performance, helping to avoid public health incidents or deviations from target water quality measures. The use of data review to support the management of drinking water quality is broadly consistent with current practice across the sector and is embedded in the ADWG. However, some agencies would benefit from additional attention and investment in data review processes.

The specific requirements for a risk-based asset inspection and maintenance program would reinforce a well-established risk management practice in the sector. Issues related to aging infrastructure and the increasing number of incidents linked to asset performance have been outlined in the Problem Statement. Recent audit outcomes have demonstrated major failings for some water agencies in applying a risk-based approach in their inspection and maintenance programs. A lack of appropriate oversight over ageing infrastructure may lead to failure of critical infrastructure, leading to water contamination events such as ingress of untreated water into drinking water supplies or animals entering and dying in water storage tanks. This requirement would mean that these agencies would need to improve their inspection and maintenance program, which will result in fewer incidents related to asset performance.

Expanding the requirement for CCPs to apply to the entire water supply system represents a more holistic approach to risk management than is currently being undertaken in the sector. While some agencies may already consider CCP-like controls beyond treatment (e.g., quality control points), other agencies continue to limit formal CCP identification and documentation to treatment processes, as prescribed by the current regulatory framework. This means that some water storage managers that do not manage treatment processes do not identify and document CCPs. A narrow application of CCPs may overlook their potential value in managing risks in other parts of the supply system, including catchments, storage, and distribution networks. Without a specific regulatory requirement to assess CCPs more broadly, some agencies may continue to not consider their applicability beyond treatment in line with current practice. This could result in missed opportunities to identify and control significant risks elsewhere in the system, ultimately reducing the overall effectiveness of drinking water risk management and increasing the potential risk to public health. This option is designed to ensure that all relevant preventative measures and barriers that meet the criteria for designation as a CCP are documented in the agency's RMP, regardless of where in the system the CCP is located. This ensures that operational control measures are appropriately considered and applied.

These changes would collectively clarify regulatory expectations to ensure stronger alignment of risk management practices with best practice, as outlined in the ADWG. As described above, each additional requirement is expected to incrementally improve risk management practice relative to the base case across the water sector, particularly for agencies that do not currently include these elements in their RMPs, whether in full or to a level consistent with best practice. In total these changes are expected to provide a clear improvement in managing risks relative to the base case.

Option 2 is scored at +4 relative to the base case.

Improving regulatory intelligence and oversight

Option 1 – Remake the 2015 Regulations

Under the existing Regulations, the regulator's oversight of RMPs relies primarily on issues identified through RMP audits. However, a lack of specificity in RMP requirements can lead to inconsistent reporting of audit outcomes, as there are fewer clearly defined RMP requirements against which compliance can be consistently assessed across the sector. This issue may be further compounded if RMP audit compliance and reporting were based solely on the broad, principle-based requirements in the Act. Limited reporting on compliance with elements required by the Regulations may reduce the Health Regulator's ability to assess risk management practices across the sector and to take targeted regulatory action where necessary. Established RMP processes and corporate knowledge are expected to maintain existing RMP quality for the most part. Retaining the current RMP requirements ensures a level of uniformity in RMP expectations and related reporting that can inform regulatory intelligence. Establishing clear evidence of key risk management practices is essential for the regulator to verify that RMPs are reducing risks to the drinking water supply. Therefore, remaking the existing Regulations is considered to be marginally better than the base case of relying on the principle-based RMP requirements in the Act.

Option 1 is scored at +1 relative to the base case.

Option 2 – Strengthen RMP requirements

Under this option, regulatory visibility would remain limited due to the third-party nature of the RMP audit process. However, greater specificity in RMP requirements would further strengthen the robustness of audit assessments, particularly in evaluating alignment with best practice outlined in the ADWG. While auditors would likely continue to assess RMPs against the ADWG in the absence of detailed regulatory requirements, establishing clear RMP requirements supports the effective use of regulatory tools – such as a tailored approach to the RMP audit – to drive improvements in specific areas of risk management practice. This would result in an additional layer of regulatory oversight, such as that focussed specifically on asset related risks and their management to address the performance issues previously identified in the Problem Statement.

This option would be expected to facilitate more consistent RMP audit reporting by introducing greater specificity, and over time, improve associated regulatory intelligence as deficiencies identified through audits are rectified. In turn, this would support the Health Regulator in initiating targeted audits through the existing third-party audit approach on the proposed RMP requirements relevant to this option. Although this is largely indirectly beneficial to regulatory oversight and intelligence, this proposal is considered somewhat more beneficial than the base case and status quo for this criterion.

Option 2 is scored at +2 relative to the base case.

Ensuring the ongoing quality of drinking water

Option 1 – Remake the 2015 Regulations

The existing Regulations provide an accountability mechanism by requiring water agencies to document and maintain systems and processes for managing risks to drinking water quality. A robust understanding of risk enables agencies to better identify and prioritise investment decisions to maintain water quality. The existing Regulations provide RMP requirements that help ensure these practices are consistently applied and maintained over time. However, the existing Regulations do not require sufficient investigation, identification and planning for long-term mitigation of risks to water supplies. This option is considered only marginally superior to the base case for this criterion as the RMP requirements in the existing Regulations do not adequately consider future risks that would enhance long term water quality planning.

Option 1 is scored at +1 relative to the base case.

Option 2 – Strengthen RMP requirements

While the existing Regulations broadly capture some RMP activities through principles-based RMP requirements, the lack of specificity does not sufficiently emphasise their importance in relation to the increasing risks posed by climate change. Strengthening regulatory clarity in these areas would support a more proactive, consistent and long-term approach to risk management across the sector. Specifically, introducing clearer RMP requirements for the long-term review of data and emerging risk assessment would require agencies to document processes to understand emerging trends, such as gradual changes in source water quality, and consistently anticipate and mitigate climate-driven risks to water quality. While capacity to undertake these activities varies based on agency size and resourcing, these requirements aim to ensure all agencies meet minimum standards in understanding emerging risks and

conducting long-term data analysis. This will support consistent application of evidence-based decision-making across the sector, requiring all agencies to identify and prioritise investment decisions related to long-term planning for emerging risks.

In the absence of specific RMP requirements relating to emerging risks, some agencies may not adequately prioritise the proactive identification of new or evolving threats to drinking water quality. This may limit their ability to anticipate and mitigate potential risks, increasing the likelihood of reactive – rather than preventive – responses to contamination events linked to emerging risks. A clear and enforceable requirement to consider emerging risks – such as those associated with climate change and emerging contaminants of concern – will better support resilient management of raw water supplies and supply systems amid increasing pressures identified in Chapter 2. Additionally, the Victorian and Australian water sector have well-established networks that already facilitate the sharing of risk intelligence. These networks are expected to play a key role in supporting compliance across the sector.

This option increases the emphasis on assessing and understanding risks into the future to aid in planning for activities and investments in preventative measures and treatments that are becoming more relevant with climate change and changes to land use with population increases. As such, it would be substantially more effective than the base case in ensuring the ongoing quality of drinking water.

Option 2 is scored at +8 relative to the base case.

Costs

Option 1 – Remake the 2015 Regulations

If the 2015 Regulations were remade without changes, the costs to water agencies would be minor relative to the base case, as current industry practice, including the RMPs that are subject to continuous review, largely align with the Regulations. It is not expected that agencies or auditors would significantly change their practices or incur significant costs relative to the base case. As such, this option (the status quo) is considered only slightly more costly than the base case.

Option 1 is scored at -0.5 relative to the base case.

Option 2 – Strengthen RMP requirements

Under this option, some costs would likely be incurred by all water agencies in documenting the new requirements in their RMPs, if they are not already doing so. Agencies that are not currently incorporating these elements in their RMPs in line with the ADWG will incur more significant costs, particularly in establishing and documenting these new risk-based processes in their RMPs. Water agencies with matured risk management practices that already align with the ADWG are expected to incur only minor administrative costs related to documenting these existing practices in their RMPs to achieve compliance. The Department anticipates that the majority of agencies will incur minor reporting costs, and some costs associated with desktop analysis. However, these costs are relatively small in proportion to water agency budgets and are expected to be largely manageable over time within existing resources. Some water storage managers may also incur new costs to undertake CCP assessments, as the requirement to document CCPs previously applied only to treatment processes.

As all agencies will incur some additional administrative costs to comply with these requirements in each year of the Regulations, the overall costs for all twenty water agencies combined is estimated to be $7.7m, which makes this option cost measurably more than the base case.

Option 2 is scored at -3 relative to the base case.

Identifying the preferred option

Option 2 – Strengthen RMP requirements is the preferred option as it has the highest weighted score in the MCA.

Option 2 is preferred because it provides clear requirements for all agencies to document core risk management practices in their RMPs that align with best practice in the ADWG. This is expected to result in fewer incidents over time, especially those related to asset performance and other emerging risks. In addition, Option 2 strengthens agency resilience to drinking water quality risks associated with climate change, improving the long-term quality of supplied water. By introducing greater specificity in RMP requirements, Option 2 improves the audit process through clearer criteria for assessing compliance, enabling more targeted audits focused on key risks and supporting consistent implementation of best-practice approaches across the sector. Option 2 results in substantial additional costs to water agencies to comply with the new requirements, especially where agencies had not incorporated best practice risk management processes. Nonetheless, the Department expects the benefits of Option 2 to exceed the additional costs.

Table 2: Summary of MCA scores for risk management plans

MCA criteria	Weighting	Option 1	Option 2
Risk to health	30%	1	4
Reg oversight	10%	1	2
Water quality	10%	1	8
Costs to gov and agencies	50%	-0.5	-3
Weighted MCA score		0.25	**0.70**

6. Options for water sampling localities

Water sampling localities (or areas, as defined in the proposed Regulations) are discrete geographical areas that are representative of the drinking water supplied to that area. Depending on a locality size, there may be one or multiple water sampling points within a locality. This chapter of the RIS assess options including updating the Regulations to reduce regulatory burden on water suppliers while maintaining appropriate oversight of this key element of water sampling programs.

The nature and extent of the problem to be addressed

As set out in Chapter 2, drinking water can contain pathogens or have other characteristics that cause illness, or make the water unacceptable to the community. This can also generally undermine public confidence in the water supplied. Sampling and testing is required to monitor drinking water for the presence of those pathogens and characteristics, so that corrective or preventative action can be taken where needed. Monitoring also allows regulatory oversight of whether water suppliers are complying with regulatory obligations to manage and reduce the risk of poor-quality water being supplied. That oversight drives compliance through deterrence and through enforcement and intervention by the regulator as needed.

Sampling localities are part of a sampling program that supports best practice management and monitoring of water quality. Factors that impact quality of water differ across the source, supply and treatment system that is managed by a supplier. Designing a water sampling program with defined areas within which samples will be collected allows water suppliers to identify issues related to drinking water sources, treatment processes, or distribution, and to identify the delivery points supplying drinking water to customers within a water sampling locality. This ensures that water sampling results are representative of the water being supplied. Water sampling and transparency about water sampling results through reporting by water suppliers also supports community confidence in drinking water being supplied.

The base case

In the absence of Regulations under the Act, there would be no specific regulatory requirements on water suppliers to establish a water sampling program, to collect and analyse samples or to report to the Secretary on sample analysis results. Suppliers would have general risk management obligations under section 7 of the Act, and water supplier personnel would be obliged to notify the Secretary under section 22 if of the belief that water being supplied my cause illness or pose a risk to human health. It is expected that water suppliers would still set a water sampling program and collect and analyse samples, to monitor the quality of water, and manage and mitigate risk to the public. However, there would be no consistent and enforceable requirements or process to influence water suppliers to adopt best practice, and no formal regulatory oversight of water sampling localities, processes or results. Water sampling localities would not be published in the Government Gazette for transparency for the public. Without the regulatory oversight provided by the water sampling localities process in the Regulations, over time, decisions about water sampling localities are likely to become less

rigorous, which could result in less representative monitoring of drinking water quality. This in turn would lead to increased risks and decreased quality of water over time. Importantly, without a robust and representative water sampling program, water agencies and the regulator would be unaware of any deterioration in quality until it was detected further downstream or after incidents began to occur at the point of consumption. Such delays in detection can lead to serious public health impacts, such as those illustrated in the Havelock North outbreak (described in Box 2) where delayed recognition and response contributed to the scale of the outbreak.

The status quo

Regulation 8 requires a water supplier's RMP to include a water sampling program. The program must describe, among other things, how the selection of sampling locations and sampling frequency were considered within a sampling locality to ensure that the samples collected are representative of the drinking water supplied in the water sampling locality (regulation 8(1)(d)(iv)). Compliance with this requirement is monitored through an audit process – under section 11 of the Act the Secretary may require that the RMP be audited by an independent auditor approved by the Secretary.

Regulation 13 requires samples to be collected in accordance with the sampling program, regulation 14 requires those samples to be analysed, and regulation 15 requires sample results to be reported to the Secretary, where those results indicate non-compliance with the water quality standards or a risk to human health.

Regulation 6(2) specifies that water suppliers can submit proposals either on their own initiative or as directed by the Secretary. The proposal must ensure that the water sampling locality is representative of the drinking water supplied in that area. Upon receiving a proposal, the Secretary may specify an area that is supplied with drinking water to be a water sampling locality by notice published in the Victorian Government Gazette (regulation 6(1)). The proposal process includes compiling detailed information about an area that could be specified as a water sampling locality as part of the proposal process (regulation 7). All locations supplied with drinking water must be within a water sampling locality boundary.

The detail required, such as geographic coordinates, can be onerous for water suppliers to prepare and for the department to assess. There are also associated costs relevant to publishing in the Victorian Government Gazette and some proposals can be hundreds of pages in length.

Water suppliers are in possession of the information and expertise required to set water sampling localities and have a general obligation to document their water sampling program in their RMP, including detail of the locations from which samples are taken and how they have considered the need to ensure that their water sampling program will ensure that sampling results are representative of the water being supplied. The process of assessing proposals for water sampling localities does not provide the regulator with highly valuable regulatory intelligence. Regulatory oversight is better informed by audit results relating to the water sampling plan and risk management generally, which requires overall knowledge of the boundaries of water sampling localities but not detailed review and approval of locality boundaries, and by reporting from sampling and other monitoring activity conducted by water

suppliers. The costs to suppliers and government from the current process are disproportionate to the benefits.

Identification of options

Option 1 – Remake the 2015 Regulations

Option 1 maintains the current regulatory requirements for water suppliers to submit proposals to amend water sampling localities to the Secretary for approval and publication in the Victorian Government Gazette.

Option 2 – Remove gazettal requirement

Under Option 2 the Regulations would not include a requirement for water suppliers to submit a water sampling locality proposal to the Secretary for approval and publication in the Victorian Government Gazette.

Instead, the Regulations would specify that water suppliers must specify water sampling localities, by reference to the same matters that are currently addressed in water sampling locality proposals submitted to the Secretary, including the:

- the source or sources of the water that would be supplied as drinking water in the proposed water sampling locality;
- the treatment processes that would be applied to water that would be supplied as drinking water in the proposed water sampling locality; and
- the distribution system that would be used to supply drinking water in the proposed water sampling locality.

This option introduces a requirement for the water suppliers to set out in their RMPs, which would be subject to audit, how these matters were considered in determining the sampling localities.

To provide regulatory oversight of changes to water sampling localities, water suppliers would be required to report to the Secretary about changes made to water sampling localities.

To allow for any situation where there is reason for concern about the areas determined by a water sampling locality this option also includes a power for the Secretary to direct a water agency to amend the details of a water sampling locality if the Secretary is not satisfied that the water sampling locality is representative of the water supplied in that area or if the Secretary believes drinking water is being supplied in an area not covered by a water sampling locality.

To retain public transparency, water suppliers would be required to disclose details of sampling localities in their annual reports, and to the public in line with their reporting obligations under section 23 of the Act, to make water quality monitoring information available to the public.

Assessing the options

This section asses the options presented against the multi-criteria analysis criteria outlined in Chapter 4.

Benefit criteria 1 Reduction in risks to water supply

Option 1 – Remake the 2015 Regulations

Remaking the 2015 Regulations, reduces risk to water supply compared to the base case, by requiring water suppliers to have and document a thorough and evidence-based process for specifying water sampling localities. This process helps ensure the supply system is mapped and understood to facilitate the identification of representative sampling points for each area of supply. The existing Regulations ensure that risks to water supply are reduced compared to the base case by ensuring the continued focus of water agencies on ensuing sampling localities are representative. Specific requirements outlined in this current regulation are considered to be somewhat more effective in reducing risks to water supply than the base case.

Option 1 is scored at +2 relative to the base case.

Option 2 – Remove gazettal requirement

Option 2 reduces risks to the water supply by the same amount as Option 1 relative to the base case. Option 2 requires water suppliers to make decisions about water sampling localities with regard to the same matters as in Option 1. In addition, it imposes an additional obligation on water suppliers to include in their RMP information about how water sampling localities have been determined. In addition, water suppliers will be able to more flexibly and quickly make changes to water sampling localities in response to changing circumstances, as compared to Option 1. These requirements reduce risks relative to the base case to the same extent as Option 1.

This option receives a score of +2 relative to the base case.

Benefit criteria 2 Improving regulatory intelligence and oversight

Option 1 – Remake the 2015 Regulations

Remaking the 2015 Regulations would require water suppliers to:

- develop and maintain localities to facilitate representative sampling; and
- propose (updates to) water sampling localities in writing to the Secretary, accompanied by detailed specified information.

It would also require the Department to review proposals and, where appropriate, arrange for localities to be specified by publication in the Government Gazette.

Remaking the Regulations provides a very high level of regulatory oversight because the regulator must review and recommend to the Secretary (or delegate) whether to specify the proposed water sampling locality by publication in the Government Gazette. This oversight ensures representative monitoring of drinking water quality in the long run. As such, the status quo provides a significant benefit over the base case for this criterion.

Option 1 is scored at +4 relative to the base case.

Option 2 – Remove gazettal requirement

Removing the gazettal requirement reduces direct regulatory oversight of the process of specifying sampling localities, as the regulator would no longer review all proposed water

sampling localities and prepare recommendations to the Secretary or delegate about gazettal. The change also reduces the level of detail the regulator would receive about changes to localities. However, water suppliers would be required to notify the Secretary of changes to drinking water localities, with a lower level of detail required than under the existing requirement to submit detailed maps and other information for publishing in the Government Gazette and the level of detail required in submissions to the Secretary is designed to only provide that which is relevant to the Secretary's functions under the Act and would allow the regulator's oversight to be focussed on audit results relating to water sampling localities and water sampling programs, and on regulatory intelligence about water quality. In addition, under Option 2, the Secretary can issue a direction for a water supplier to amend water sampling locality if they are not satisfied that it is representative or they believe drinking water is being supplied in an area not covered by a water sampling locality. This retains the ability for the regulator to require changes to water sampling localities, which is an important oversight power for the regulator to ensure risks do not emerge over time.

This option does not substantially change the level of regulatory intelligence and oversight provided by the status quo and as such it receives the same score for this criterion.

Option 2 is scored at +4 relative to the base case.

Benefit criteria 3 Ensuring the ongoing quality of drinking water

Option 1 – Remake the 2015 Regulations

This option supports ensuring the ongoing quality of drinking water by driving best practice sampling by water suppliers. The information provided by representative sampling enables water agencies to cater treatment efforts to the unique characteristics and challenges of the storage, treatment and supply aspects of each water supply system and to prepare long-term plans using robust information about water quality. The process for changing locality boundaries (through the proposal and gazettal process) enables the localities to be updated to account for changes and innovations in the supplier's treatment and risk management approach based on up-to-date intelligence.

The existing Regulations are considered to be a small improvement over the base case because they ensure that water sampling localities do not become less representative over time.

Option 1 is scored at +2 relative to the base case.

Option 2 – Remove gazettal requirement

Option 2 has the same benefit characteristics of Option 1 as water suppliers will consider the same key factors to determine and update water sampling localities. Option 2 ensures that throughout a water supplier's distribution system, the water supplied can be verified for all relevant water quality characteristics and that the sampling localities can be changed to reflect changes in factors that impact water quality, and to reflect innovations and continuous improvement by the supplier.

Option 2 is also scored at +2 relative to the base case.

Costs

Option 1 – Remake the 2015 Regulations

Under this option water suppliers incur costs of about $434,000 associated with compiling and submitting detailed proposals and maps to Secretary. Government incurs costs assessing and processing proposals and then publishing water sampling localities in the Government Gazette. These are administrative costs to both water suppliers and the regulator, with about $164,000 being attributable to fees payable for publication of water sampling locality information in the Victorian Government Gazette.

When scaled against the other identified costs in this RIS, Option 1 has only a small cost increase compared to the base case.

Option one is score at -0.23 relative to the base case.

Option 2 – Remove gazettal requirement

Under this option, water suppliers should see a small reduction of about $125,000 (to $309,000) in administrative costs relative to Option 1, as the information to be submitted to the Secretary in relation to water sampling localities will be less onerous (i.e., the level of prescribed detail required when notifying the Secretary of changes to localities is limited to what is necessary for the Secretary to assess whether the updated locality remains representative).

These changes would provide water suppliers with a more efficient means to adjust water sampling localities, such as when responding to population growth. They would also eliminate the costs associated with the gazettal process. However, as with Option 1, this proposed change is small in magnitude relative to the other costs identified in this RIS.

Option 2 is scored at -0.12 relative to the base case.

Identifying the preferred option

Option 2 – Remove gazettal requirement is the preferred option as it has the highest weighted score in the MCA.

Option 2 is preferred because this option maintains the benefits of the existing Regulations in reducing risk to the quality of water, improving regulatory oversight, and ensuring ongoing quality of drinking water compared the base case by retaining a robust process for ensuring that water sampling localities are representative and comprehensive. At the same time, it slightly reduces administrative burden on water suppliers and the regulator compared to the status quo of remaking the Regulations, and has a negligible cost compared to the base case.

Table 3: Summary of MCA scores for water sampling localities

MCA criteria	Weighting	Option 1	Option 2
Risk to health	30%	2	2
Reg oversight	10%	4	4
Water quality	10%	2	2

Costs to gov and agencies	50%	-0.23	-0.12
Weighted MCA score		1.09	**1.14**

7. Options for managing microbial risk

Management of microbial risk is the primary activity water agencies can undertake to reduce the risk that drinking water may pose to human health. This chapter of the RIS assesses options including updating the Regulations to introduce new requirements for water agencies to document processes used to manage the microbial safety of drinking water in accordance with the ADWG in their RMP, and to report to the Secretary when treatment performance has fallen below a specified minimum threshold. This is intended to build on processes established by water agencies over the last ten years, to further best practice risk management and continuous improvement, and to improve regulatory oversight of water quality.

The nature and extent of the problem to be addressed

The greatest risk to public health from drinking water is the presence of disease-causing microorganisms (pathogens) in the water.[32] Monitoring and managing this risk is the key mitigation that can reduce risk. A key plank of the regulatory framework in the Act addresses this by imposing high level risk management obligations on water agencies, to establish and implement and update their RMP, which can be subject to third-party audit.

The base case

Under the base case where no Regulations are in place, there would be no specific requirement in RMPs to document processes relevant to management of microbial risk and so there would be no audit of the documented processes agencies have in place. Under the Act water agencies would be required to establish, implement and review a RMP in relation to the quality of the water supplied (sections 7 and 8) and those plans would be required to include a detailed description of the system of supply, identify risks to the quality of the water, assess those risks and set out the steps to be taken to manage the risks (section 9). That RMP would in practice be informed by guidance in either WSAA or ADWG in relation to management of microbial risk. Currently, all relevant water agencies have microbial HBT frameworks in place and these are long term and ongoing so they would remain in place if the existing Regulations expired.

The base case is insufficient for managing microbial risks to drinking water as it does not sufficiently target regulatory obligations on management of microbial risk, to drive best practice management by water agencies. It likewise does not focus regulatory oversight, and potential sanctions or interventions, on these risk management activities that are according to the best scientific evidence the most important and effective at reducing risk of poor-quality water.

[32] NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

The status quo

The 2015 Regulations require water agencies that operate and maintain a drinking water treatment process to document in their RMP the methodology used to ensure the microbial safety of drinking water quality. These requirements are intended to be consistent with the application of a microbial HBT framework.

One significant update to the ADWG since the drafting of the Regulations in 2015 has been the 2022 guidance in Chapter 5 on microbial HBTs (see Box 4 for more information) to assess and manage the enteric pathogen risks in drinking water supplies. The updated ADWG guidance aligns with WHO's Guidelines for drinking-water quality and other international guidance, to reflect contemporary best practice in managing the microbial safety of drinking water.

In Victoria, there are inconsistencies across the sector in terms of the microbial HBT framework adopted, with a number of agencies still yet to fully incorporate the ADWG's microbial HBT framework, which reflects the best available Australian evidence for microbial risk management. Continued reliance on the older WSAA microbial HBT guidance may result in water agencies relying on treatment targets that do not reflect the most up-to-date Australian evidence for microbial risk management, potentially leading to inadequate pathogen reduction, and therefore, posing a potential risk to public health.

Further, compliance with the RMP requirements is monitored through the audit process. This does not provide direct and timely information to the regulator about water agency performance against the HBT framework. The lack of regulatory intelligence relating to agency performance in meeting microbial HBTs may result in the Health Regulator having an incomplete understanding of the microbial safety of drinking water across specific supplies, which reduces opportunities for regulatory intervention to address inadequate risk management and treatment practices that could render drinking water unsafe.

Box 4: What are Microbial Health-Based Targets?

The World Health Organization (WHO) defines health-based targets (HBTs) as 'measurable health, water quality or performance objectives'.[33] In the ADWG, HBTs are expressed as:

- A health outcome target (i.e. a defined tolerable burden of disease)
- Treatment performance targets (i.e. the level of treatment required to achieve microbially safe water).

Microbial HBTs, as outlined in the ADWG, provide a quantitative measure of the microbial safety of drinking water. They are used to manage the risk from enteric pathogens of concern in Australian drinking water, which can arise from bacteria, viruses and protozoa. The ADWG's approach to microbial HBTs provides a means for assessing the enteric pathogen risk in the source water to ensure there are appropriate measures in place (e.g. treatment) to manage the risk.

[33] WHO, 2022, Guidelines for Drinking-Water Quality: Fourth edition incorporating the first and second addenda, Geneva, WHO, viewed 24 February 2025, <https://iris.who.int/bitstream/handle/10665/352532/9789240045064-eng.pdf?sequence=1>.

HBTs serve as an operational benchmark rather than a point-in-time pass/fail metric. Being marginally below the health outcome target would not necessarily mean the water is unsafe, but rather, there may be opportunities for minor performance improvements. Shortfalls in meeting the required treatment performance targets, expressed as $\log_{10}$ reduction values (LRVs) which measure how effectively a treatment reduces contaminants, can be used to identify improvements (e.g. additional treatment) and guide the allocation of resources required to achieve the health outcome target. When incorporating microbial HBTs, it would be expected that source water with the greatest risk of microbial contamination would require more treatment than those with less risk, such as protected catchments.

While microbial HBTs provide additional measures to manage source water microbial risks, the ADWG states that they should not be used as a licence to degrade source water quality and focus should be maintained on selecting the best quality source water, catchment protection, multiple barriers and management of CCPs.[34]

Identification of options

Option 1 – Remake the 2015 Regulations

This option remakes the Regulations to impose the current RMP obligations. Water agencies are not required to have any particular model for management of microbial risk. However, information about the agency's processes for management of microbial risk would be required to be outlined in RMPs under the Regulations and could be subject to audit. Additionally, there would be no requirement to report to the Health Regulator performance as it relates to meeting microbial HBTs.

Option 2 – Align RMP with ADWG's microbial HBT framework

This option would require water agencies to incorporate microbial HBTs into their RMP, in line with the ADWG.

In effect, this would require water agencies who are responsible for managing source water used for drinking purposes to assess the level of enteric pathogen contamination in source waters with a refence to catchment vulnerability and assign a source water category. This category is specified by the ADWG, currently in Table 5.4, and is based on a comparison of *E. coli* data and the sources of and barriers to enteric pathogen contamination (i.e., catchment vulnerability). The source water category is used to inform treatment requirements outlined below.

Water agencies that operate and maintain a drinking water treatment applied to untreated water would be required to:

- Assess the treatment need based on the assigned source water category to achieve the ADWG's health outcome target of 1 µDALY Per Person Per Year (pppy), where µDALY

[34] NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

represents one millionth (10^{-6}) of a Disability-Adjusted Life Year and represents a very low level of health risk

- Ensure that the treatment required is subject to appropriate design and validation.

Option 3 – Align RMP with ADWG's microbial HBT framework, with associated reporting

This option consists of all of the features of Option 2 but also includes a reporting obligation for water agencies that operate a water treatment process to inform the Secretary if any of their systems do not operate to meet a minimum of 10^{-5} DALYs pppy. Where water agency assessments indicate system performance exceeds the 10^{-5} DALYs pppy level (e.g., increases from 10^{-5} DALYs pppy to 10^{-3} DALYs pppy), significant corrective action (e.g., capital works, such as additional source water protection or treatment) is required to improve the system performance to a minimum of 10^{-5} DALYs pppy level.

Therefore, the 10^{-5} DALYs pppy reporting threshold provides a critical indicator for the Department of a level of risk that warrants regulatory oversight and potential actions by a water agency to reduce this risk to an acceptable level. This report would be required to be made to the Secretary within 10 days of the water agency becoming aware of that fact. The report would include detail the performance of the relevant treatment processes and the actions the agency has taken or proposes to take to meet the minimum of 10^{-5} DALYs pppy.

Assessing the options

This section asses the options presented against the multi-criteria analysis criteria outlined in Chapter 4.

Reduction in risks to water supply

Option 1 – Remake the 2015 Regulations

The existing Regulations introduced new requirements to support the incorporation of microbial HBTs into RMPs in 2015. This functions to reduce risk to the water supply by requiring documented processes for managing microbial hazards. Further, sections 7 and 8 of the Act require water agencies to implement, review and update their RMP, which creates an ongoing regulatory obligation to manage microbial hazards in accordance with up-to-date documented processes. Water agencies have used the WSAA guidance, introduced in 2015, to implement HBTs to comply with the current RMP requirement. Leading water agencies have since updated their HBT frameworks to reflect more recent changes made in the ADWG to modernise their HBT methodology. However, neither approach is explicitly required by the Regulations.

The HBT framework, included in 2015 as a regulatory requirement, was a significant step forward in risk management, these systems have very long lifecycles and are now well-established standard practice for water agencies. It is not expected that an absence of regulation would see water agencies abandon HBT frameworks for treating water, nor is the existing regulatory requirement the likely key driver of water agencies currently updating their HBT systems to align with the ADWG. As such, Option 1 is considered to be moderately more effective than the base case.

Option 1 is scored at +3 which is the same as the base case.

Option 2 – Align RMP with ADWG's microbial HBT framework

Under this option, agencies are required to align with the ADWG HBT framework. This would reduce risk to the water supply by requiring documented processes for source water categorisation, treatment and validation of water treatment processes, aligned with the ADWG, which reflects the best Australian scientific evidence on how to manage and reduce microbial risk. These specific regulatory requirements are expected to more effectively influence water agencies to adopt this best practice, as compared to the base case or status quo. Sections 7 and 8 of the Act require water agencies to establish, implement, review and update their RMP, which creates an ongoing regulatory obligation to manage microbial hazards in accordance with up-to-date documented processes.

The majority of water agencies are already aligned with the ADWG or in the process of aligning their systems to the ADWG (based on survey responses) however, in the absence of an explicit regulatory requirement, there will be a small number of water supply systems relevant to a small number of regional water suppliers, serving around 100,000 households in total that will be required to be improved to a higher level of treatment if this change was implemented.

Overall, most of the potential benefits to the water sector of aligning with the ADWG microbial HBT framework are attributable to requiring this alignment from a small number of water agencies that are not already making this change to their processes. It is expected that these water agencies may need to invest in additional treatment systems, such as UV treatment, over and above their existing investment plans. For the small percentage of water agencies that would be required to align with the ADWG that otherwise would not have made the change, there would be a substantial improvement in risk reduction relative to the base case.

Option 2 is scored at +6 relative to the base case.

Option 3 – Align RMP with ADWG's microbial HBT framework, with associated reporting

Option 3 adds to the requirements of Option 2, by also including a reporting obligation for water agencies that operate and maintain treatment processes applied to untreated water that have shortfalls in meeting the health-based target of 10^{-5} DALYs pppy. This would mean that rather than entirely relying on the RMP audit function to drive improvements where required, there would be a requirement for all systems not meeting the minimum requirements to be reported to the Regulator. Under this option, it is expected that the requirement to report on HBT systems that do not meet minimum requirements within 10 days would drive increased compliance and remedial action to reduce risks to public health to an acceptable level. This is expected to increase benefits compared to Option 2.

Option 3 is scored at +7 relative to the base case.

Improving regulatory intelligence and oversight

Option 1 – Remake the 2015 Regulations

Under the existing Regulations, regulatory oversight of microbial HBT systems is limited to visibility of any non-compliance with the RMP requirements, which is reported to the regulator

through audits. Compliance with that requirement requires having detail in the RMP about the processes used to manage microbial hazards. That requirement can drive improvements to the safety of water supply as it prompts appropriate planning and governance and because water agencies are required to implement, review and update their RMPs (under sections 7 and 8 of the Act). However, the audit process has not been effective in providing useful information to the regulator on whether water suppliers are adequately maintaining drinking water within the water safety continuum 'safe zone' (i.e., between 10^{-5} DALYs pppy and 10^{-6} DALYs pppy). Accordingly, this option is only a slight improvement on the base case on this criterion.

Option 1 is scored at +1 relative to the base case.

Option 2 – Align RMP with ADWG's microbial HBT framework

Under this option, agencies are required to align with the ADWG's HBT framework, which as compared with Option 1, can support clearer auditing for adequate processes to achieve necessary levels of pathogen reduction. While this option is not a significant improvement on Option 1, it would improve clarity on the methodology required in HBT frameworks, which would make requirements clearer for auditors and facilitate better targeted auditing.

Option 2 is scored at +2 relative to the base case.

Option 3 – Align RMP with ADWG's microbial HBT framework, with associated reporting

This Option provides information to the regulator about water supply systems that fall below the 'safe zone' in the water safety continuum as identified in the HBT framework. This provides meaningful information to the regulator on how robust and effective treatment systems are to aid in applying risk-based regulatory approaches including in incident response and auditing by providing the regulator with notification of water supply systems that have minimal buffers against challenges to the supply system.

As this information is highly relevant to understanding risks to supply systems, this option is substantially better than the base case.

Option 3 is scored at +6 relative to the base case.

Ensuring the ongoing quality of drinking water

Option 1 – Remake the 2015 Regulations

Under this Option, frameworks for management of microbial risk assist water agencies to understand long term planning and investment requirements to ensure the ongoing safety of primary disinfection systems. Water agencies plan upgrades to their microbial risk management framework over two to three pricing periods (typically 5 years each). Currently the Regulations require that these processes are documented in the RMP, without specifying further detail, and water agencies have, to varying degrees, adopted WSAA or ADWG microbial HBT framework.

However, this represents some variation across the sector, and at this time the WSAA framework is ten years old and does not represent the best available Australian evidence for managing the microbial safety of drinking water supplies.

Most water agencies are moving towards ADWG's microbial HBT framework in the absence of a specific regulatory requirement to align with the ADWG. Nonetheless, the non-prescriptive current requirement to incorporate a HBT system within the RMP means that the status quo is still driving risk reductions somewhat better than the base case, which wouldn't specifically require a microbial HBT framework. Additionally, some smaller water agencies continue to require improvement to their microbial HBT frameworks, with at least one agency receiving a major noncompliance in the 2021 – 2022 audit period for failure to effectively implement a HBT framework. Requiring adoption of a microbial HBT framework sets a regulatory requirement that treatment performance, and future investment in treatment, must continue to be demonstrably linked to health outcomes.

Option 1 is scored at +3 relative to the base case.

Option 2 – Align RMP with ADWG's microbial HBT framework

Under this option, water agencies are incentivised to adopt best practice through a requirement to commence aligning with the ADWG HBT framework, by documenting relevant processes in their RMPs, which must then be implemented and reviewed and updated, and which can be subject to audit. This ensures long term planning for systems that are based on up-to-date best practice.

Mandating alignment with the ADWG HBT framework means that the small minority of water agencies that were not planning to come into alignment over the life of the Regulations, will now be required to make this transition. As such Option 2 is a small improvement over Option 1.

Option 2 is scored at +5 relative to the base case

Option 3 – Align RMP with ADWG's microbial HBT framework, with associated reporting

This option has the same benefits as Option 2 for ensuring ongoing quality of drinking water. Over the long term, under both Option 2 and Option 3, water agencies are expected to be fully compliant with the ADWG HBT system and therefore, this option overall is considered to be exactly as effective as Option 2 and receives the same score relative for this criterion.

Option 3 is scored at +5 relative to the base case.

Costs

Option 1 – Remake the 2015 Regulations

Under this Option all water agencies would be likely to eventually update their microbial HBT frameworks to reflect the ADWG guidance over time. Some water agencies have already done so, and most are in the process of aligning with the ADWG HBT framework. The WSAA methodology dates from 2015 and even allowing for improvements to be made over an extended period of time it is assumed that over time – if not within the lifespan of the 2025 Regulations, almost every HBT system would likely be compliant with the ADWG. It is difficult to determine exactly how and when the remainder of these water treatment systems would be upgraded to comply with the ADWG and with which specific investments would be required for each system.

Under this option, based on survey results, a small percentage of systems would not introduce the multiple barriers required to achieve adequate HBT performance. As no water agencies have indicated that they would do less than the requirements of the existing Regulations in the absence of a requirement and because these systems have very long lifespans, Option 1 is considered to have only slight cost implications relative to the base case.

Option 1 is scored at -0.5 relative to the base case.

Option 2 – Align RMP with ADWG's microbial HBT framework

Under this option, regional water storage managers incur some small additional costs in the first two years in assigning a catchment category. Water agencies that are not currently planning on adapting to the ADWG HBT framework, would be required to come into compliance with the ADWG HBT framework over the life of the Regulations, which could lead to substantive costs to improve water treatment. Compliance would be subject to audit, however there may be cases under this option where a water agency not reaching the 'safe zone' in the water safety continuum may have sufficient mitigation measures in place to satisfy an auditor that investment in treatment could be deferred. This RIS estimates this to be the case twenty percent of the time for the purposes of analysis and therefore this option is estimated to incur eighty percent of the substantive compliance costs estimated for Option 3 below. The total industry cost for this option is about $5.8m.

Option 2 is scored at -2.3 relative to the base case.

Option 3 – Align RMP with ADWG's microbial HBT framework, with associated reporting

Under this option, the same administrative costs to regional water storage managers apply. In addition, there would be a small incremental reporting cost in the first two years to water agencies that do not have HBT systems that meet at least 10^{-5} DALYs pppy. Under this option, as noted above, a substantive compliance cost is estimated for relevant water agencies to improve their treatment systems where treatment targets are not currently being met. This substantive compliance cost is indicatively estimated based on the cost to invest in additional UV treatment. The total industry cost for this option is about $7.2m.

Option 3 is scored at -2.8 relative to the base case.

Identifying the preferred option

Option 3 - Align RMP with ADWG's microbial HBT framework, with associated reporting is the preferred option as it has the highest weighted score in the MCA. This option requires all agencies to align HBT frameworks with the ADWG.

Option 3 is preferred because it is expected to result in investments in water treatment processes that decrease health risks for customers. These investments generally have a long life and will result in long-term improvements to water quality and provide a more robust system in the long term. In addition, this option provides improved regulatory intelligence and oversight over the HBT system. Option 3 is expected to result in minor administrative costs in the first two years of operation as well as substantial additional costs for investments in treatment processes. The Department expects the benefits of Option 2 to exceed the additional costs.

Table 4: Summary of MCA scores for health-based targets

MCA criteria	Weighting	Option 1	Option 2	Option 3
Risk to health	30%	3	6	7
Reg oversight	10%	1	2	6
Water quality	10%	3	5	5
Costs to gov and agencies	50%	-0.5	-2.25	-2.75
Weighted MCA score		1.05	1.38	**1.83**

8. Options for drinking water quality standards

Water quality standards are a key pillar of the regulatory framework established in the Act. They establish a minimum baseline to inform water supplier's risk management approach, and to inform water quality monitoring and reporting to the regulator. This section of the RIS assess options for the prescribed water quality standards, including changes to introduce additional health-based and aesthetic standards and related requirements to report to the Secretary on sample analysis results that indicate non-compliance with the standards.

The nature and extent of the problem to be addressed

As set out in Chapter 2, poor quality water can cause illness and undermine public confidence in drinking water supply. To address this the Act imposes minimum standards for water quality, which water suppliers must meet (section 17), and requires notification of the regulator when these have been breached to allow enforcement and preventative or corrective action. When the Act was established the ADWG was cited as the authoritative evidence base for those regulatory requirements.

The base case

Under the base case where there are no Regulations made under the Act, there would be no prescribed drinking water standards for the purposes of section 17 of the Act. Water agencies would still have risk management obligations under the Act and they would likely refer to the authoritative evidence of the ADWG in fulfilling those. Accordingly, it is anticipated that even in the absence of prescribed water quality standards there would be collection and testing of water samples to monitor quality, and it is expected that testing conducted would likely be informed by the ADWG. However, testing may become more reactive rather than proactive. Reports to the regulator about water that poses a risk to human health or may cause widespread public complaint would be made under section 22 of the Act. These would be variable as the threshold for reporting would be the reasonable opinion of water agency personnel. Accordingly, the base case does not sufficiently facilitate for regulatory oversight. The regulatory framework would therefore be less effective at driving best practice to manage drinking water quality and to respond to identified instances of poor-quality water.

The status quo

Section 17(1) of the Act requires water suppliers to ensure that all drinking water supplied to another person complies with drinking water quality standards specified in Regulations. The current standards are prescribed in regulation 12 and Schedule 2 of the Regulations. There are currently two health-based parameters prescribed in the standards, being *Escherichia coli* (*E. coli*), total trihalomethanes (TTHMs), and one aesthetic parameter, turbidity. In addition, current regulation 12(b) sets a broad standard that other algal toxins, pathogens, substances or chemicals should not be present in the water in amounts that may pose a risk to human health, without prescribing specific parameters.

The standards support water quality monitoring to inform water supplier's risk management approach, and reporting from that monitoring provides the regulator with intelligence about compliance with the Act and Regulations and water quality performance. Under Regulation 8 water suppliers are required to document in their RMP a water sampling program including, among other things, how the program will assist the supplier to monitor its compliance with the standards. Regulations 13 and 14 require samples to be collected in accordance with the standards and the water sampling program and analysed for the relevant parameters. Under section 18 of the Act, water suppliers must notify the Secretary within 10 days if drinking water supplies do not, or are not likely to comply, with any relevant water quality standard. Under current regulation 15 suppliers must submit a written summary of the results of any water sample analysis that finds that a relevant sample parameter has exceeded a water quality standard. Section 22 of the Act also requires immediate reporting by any water agency officer of any known or suspected contamination that may pose a risk to public health or cause widespread public complaint. In addition, annual reporting by water suppliers on their levels of compliance with the standards provide some transparency for consumers about the safety of water supplied.

The review of the 2015 Regulations has identified that the current prescribed standards could be improved to optimise this core plank of the regulatory framework.

The current standards provide some protection for human health through three specific and one broad standard, and the ADWG is referred to in practice to determine the levels of various characteristics present in water that pose a risk to human health. However, relying on three specific and one general standard allows for variability and inefficiency as there can be some ambiguity about what is required to comply with current Regulation 12(b). Time and resources can be spent making those assessments that would be better allocated to remediation or other preventative risk management.

Further, while the ADWG is the primary authoritative reference for what poses a risk to human health – and therefore what might be required to comply with the general standard – the ADWG thresholds are not specified in the Regulations, so they are not readily enforceable by the Health Regulator as water quality standards.

Further, the current standards do not fully support regulatory oversight as intended. Reporting to the regulator is limited to notifications and sample analysis reported against the three prescribed parameters, and notifications and reports submitted where a water supplier has determined that the water contains a substance in an amount that may pose a risk to human health. This provides limited regulatory intelligence, in that it relates to only three parameters so does not address all the key indicators of potential risk to human health identified in the ADWG. Reporting against the standard in current regulation 12(b) also provides limited intelligence in that it relies on an assessment by each water supplier rather than consistent objective benchmarks. More detailed standards will mean that reporting against the standards is consistent across the sector and is robustly tied to the best evidence in the ADWG. This is vital to the Secretary's performance of its functions under 27 of the Act, which include to protect public health in relation to the supply of drinking water and to monitor and enforce compliance with the Act and the Regulations.

Further, the current standards do not effectively manage the risk posed by *E. coli. E. coli* is the ADWG's primary indicator for monitoring microbial safety in drinking water, and the presence

of any *E. coli* is considered a clear indicator of potential risk is vital that there is timely visibility for both and prompt remedial action by the water supplier. The standard should operate to alert both the water supplier and the regulator when there has been any positive detection of *E. coli*. Schedule 2 seeks to account for 'false positive' results, so that they do not constitute a contravention of the standards. While this was intended to allow for transparency where further investigation of a sample result reveals a false positive, it causes confusion and can misdirect the focus of water agencies and the regulator. It has resulted in unnecessary ambiguity about the cause of detections of *E. coli* within distributed water, and created a high level of compliance work for both the Department and water suppliers in assessing if false positive provisions apply, when effort could have been better spent investigating the incident from a starting assumption that the sample result/exceedance was indicative of a risk to the drinking water supplied.

The Act provides for aesthetic standards, as distinct from those that measure risk to heath, and includes a process for application to the Minister for variation of those standards following consultation with the relevant community. The existing Regulations have not supported this with only an aesthetic-focused value for turbidity prescribed as a standard. This can mean that monitoring and managing aesthetic qualities of water is deprioritised. Water agencies report on activities and performance in 'managing aesthetics' in annual reports, but in varied ways. In practice, all water suppliers use ADWG's aesthetic-guideline values to measure against and report on their aesthetic performance in their annual reports, but these are not used as performance measures, and it is often not clear how much community engagement has occurred about drinking water supplies that do not fall within the guidelines. Without clear and consistent state-wide minimum standards there is not a benchmark that should be aimed to be exceeded and continuously improved on.

Identification of options

Option 1 – Remake the 2015 Regulations

This option would remake current regulation 12 and current Schedule 2 of the Regulations that outline the drinking water quality standards. This would prescribe three standards, for *E. coli*, TTHMs and turbidity, and allow a carve out for 'false positive' detections of *E. coli*. A further 'catch all' standard would require that substances in the water must not be present in an amount that may pose a risk to human health (current regulation 12(b)). Water suppliers would be required to notify the Secretary under section 18 of the Act where they become aware that water does not comply or is not likely to comply with the standards. The Regulations would require sampling in accordance with the standards and the water supplier's water sampling plan, and reports to the regulator about sample analysis where the results show non-compliance with the standards.

Option 2 – Adopt ADWG's guideline values as standards

Under this option the health based and aesthetic guideline values from the ADWG (as updated from time to time) would be prescribed as standards for the purposes of section 17 of the Act, including the removal of the allowance for 'false positives' for *E. coli*. That is, any measurement of those health-based parameters or characteristics would constitute non-compliance with the standards. This approach formalises industry practice for health-based parameters, while

building on the existing requirement to 'manage aesthetic qualities of water' and existing practice to reference the ADWG's aesthetic guideline values. Sampling would be required under the Regulations against the prescribed standards. Notifications under section 18 would be required where water does not comply with the health and aesthetic standards and the Regulations would require reporting on sample analysis results that indicate non-compliance. This would mean that notification under the Act would be required within 10 days of becoming aware that water does not comply or is likely to not comply with the standards – that is, for any known or likely point-in-time exceedance or non-compliance of the prescribed threshold for each prescribed characteristic. Likewise, the reporting requirement in the Regulations would be triggered by any results of any sample analysis that indicate a point in time exceedance or non-compliance.

Option 3 – Adopt ADWG's guideline values as standards with rolling average applied to aesthetic values

Under this option, health-based guideline values from the ADWG as updated from time to time would be prescribed as water quality standards for the purposes of section 17 of the Act. That is, those characteristics must not be present in the water in an amount that exceeds the relevant guideline value. For health-based drinking water standards, this is the same as in Option 2.

Aesthetic guidelines would be prescribed as follows. For pH, levels in the water must remain in the range of 6.5-9.2 on a rolling annual average basis, with testing conducted at least monthly. For all other aesthetic guideline values in the ADWG other than chlorine, the relevant guideline value must be met on a rolling annual average basis. No aesthetic standard would be prescribed for chlorine. This option recognises the subjective nature of aesthetic guideline values and the complexity of monitoring them, as well as different community expectations and preferences.

Given the more complex design of interaction between the ADWG and the prescribed aesthetic standards under this option, the prescribed guideline values would reflect the current version of the ADWG, and any future updates to the ADWG for those values would be considered to inform a decision on whether they should be adopted as enforceable regulatory standards.

The Regulations would require a water supplier to develop a water sampling program and document that in its RMP. The Regulations would require sampling for *E. coli*, TTHMs, turbidity and pH at a specified frequency, and for other parameters at the frequency set in the water supplier's water sampling program. Otherwise, as currently, the Regulations would provide that the Secretary may determine the sampling frequency for a specified parameter or parameters for which a standard is prescribed, by notice published in the Government Gazette.

For health-based standards the requirement to notify the Secretary under section 18 of the Act would apply for any known or likely point-in-time exceedance of a prescribed threshold for a prescribed characteristic. For aesthetic standards it would require notification where a water supplier becomes aware of non-compliance or likely non-compliance with those thresholds on an annual rolling average basis. Under the Regulations, reporting on sample analysis results would be required within ten days for any sample that indicates a point-in-time non-compliance with a health-based threshold or results in widespread public complaint. On sample results relating to aesthetic characteristics, reporting would be required on point-in-

time non-compliance, but reports would be due on a quarterly basis rather than within ten days of the water supplier receiving the analysis results.

Assessing the options

This section asses the options presented against the multi-criteria analysis criteria outlined in Chapter 4.

Reduction in risk to drinking water supply

Option 1 – Remake the 2015 Regulations

This option reduces risk in drinking water supply through two specific prescribed health-based standards and one general prescribed standard that substances in the water should not be present in amounts that may pose a risk to human health. This sets a minimum benchmark for water quality and informs monitoring, risk management and notifications and reports to the regulator. In practice, water suppliers use the ADWG as the primary reference for assessing what levels of contamination may pose a risk to human health. However, as the thresholds in the ADWG are not incorporated into the Regulations there may be variation in how the general standard in current Regulation 12(b) is applied, and therefore variation in how water suppliers assess and address risk operationally. In addition, regulated guideline values means that any point in time exceedance of that threshold prompts the water supplier to notify the regulator and take any necessary remedial action, as opposed to a potentially cumulative (and therefore less proactive) approach to assessing risk to human health based on ADWG guideline values that represent a risk to human health extrapolated over a lifetime of potential exposure. There is also inefficiency due to operational and regulatory effort expended on addressing that ambiguity can detract focus from actions that would best assure water quality to protect health.

This means that Option 1 is only marginally more beneficial than the base case.

Option 1 is scored at +1 relative to the base case.

Option 2 – Adopt ADWG's guideline values as standards

Under this option, the ADWG health guideline values are fully incorporated as drinking water standards. This would aid in reducing risk in the water supply by introducing comprehensive standards for all relevant water characteristics, tied directly to the best available scientific evidence in the ADWG. This would ensure that all water suppliers are relying on the most up to date evidence of risks to human health in assessing risks for drinking water samples collected. As this option prescribes comprehensive water quality standards that water suppliers must meet, it is a measurable improvement on the base case, where there would be no standards and the obligations on water suppliers in relation to water quality standards would have no effect and so water quality performance could be highly variable.

Option 2 is scored at +3 relative to the base case.

Option 3 – Adopt ADWG's guideline values as standards with rolling average applied to aesthetic values

This option has the same benefits related to reducing risks as Option 2 and as such, it receives the same score relative to the base case as Option 2.

Option 3 is scored at +3 relative to the base case.

Regulatory intelligence and oversight

Option 1 – Remake the 2015 Regulations

Under this option there is more oversight over water quality through notifications to the regulator than under the base case, making this option marginally better than having no Regulations for drinking water standards. The regulator would receive information on drinking water quality through notifications on non-compliance with *E. coli*, TTHM and turbidity standards under section 18 of the Act, through reports on results of sample analysis that reveals non-compliance with the standards, and through reports under section 22 where a person forms a belief that water poses a risk to health or may cause widespread public complaint. The threshold for notifications and reports would be objectively clear for TTHMs. For *E. coli* the false positive provisions creates ambiguity and diverts focus from responding to a potential risk to health. The relevant notification and reporting threshold for the purposes of regulation 12(b), which is a general 'catch-all' standard that substances in the water must not be present at levels that pose a risk to human health, is less clear. The regulatory oversight allowed by these reports is variable because – notwithstanding the common application of the threshold values in the ADWG to assess risk – the obligation to report to the regulator is not formally linked to those thresholds so reporting depends to a degree on the water agency assessment of whether there is a risk to human health including whether they approach risk to human health on a more cumulative basis in the context of lifetime exposure thresholds that form the basis of most ADWG health-based guideline values. Similarly, any reporting under section 22 is based on a belief or suspicion formed by a water supplier officer about risk to health. While there is widespread use of the ADWG as the best evidence to inform that risk assessment, reliance on suppliers and their officers to determine the threshold for reporting means that reporting does not provide a holistic and consistent view of water quality on an agency or statewide basis.

Option 1 is scored at +1 relative to the base case.

Option 2 – Adopt ADWG's guideline values as standards

While in theory option 2 provides a very high level of oversight, the volume of information that the regulator would receive would be likely to be overwhelming. This could lead to less efficient regulatory practices as Health Regulator resources could be diverted from other areas of the Health Regulator to process the large number of reports of exceedances of aesthetic standards, for little benefit compared to other activities of the Health Regulator. Therefore, under this option, the regulator would have a large amount of data, but regulatory oversight would be partially undermined by the large volume of reporting.

It is anticipated there would be a relatively high rate of non-compliance with the aesthetic standards under this option. This would provide the regulator with a comprehensive picture of challenges to water quality but would also place a significant administrative burden on both

the water suppliers and the regulator. Since aesthetic guideline values do not relate to risk to human health, it would be preferable to ensure that available resources in water suppliers and the regulator are primarily focussed on non-compliance with the health-based guideline values, to appropriately target risk management and regulatory oversight to the most immediate potential harms. On balance, this option represents a moderate overall improvement in regulatory oversight over the base case.

Option 2 is scored at +4 relative to the base case.

Option 3 – Adopt ADWG's guideline values as standards with rolling average applied to aesthetic values

Option 3 provides a similar amount of regulatory intelligence to the regulator as Option 2, but in a more targeted manner without the associated overwhelming volume of reports. This option would provide the regulator with oversight on aesthetic parameters across the state that may from time to time exceed guideline values but are not sufficient in number to lead to non-compliance with the standard, which requires thresholds to be met on a rolling annual average basis. Water suppliers would be required to provide quarterly summaries of all test results that exceed an aesthetic guideline value. Under this option the regulator has regular and broad information on events, incidents and other factors that lead to drinking water characteristics deteriorating. This would aid in the Secretary performing their monitoring and enforcement function under section 27 of the Act. The reporting frequency and content is designed to appropriately target the regulator's monitoring activity so that it can efficiently consider compliance and risk to inform any interventions deemed appropriate.

This more tailored reporting approach means that this option is scored twice as high as Option 2 and is assessed as being substantially more beneficial than the base case.

Option 3 is scored at +8 relative to the base case.

Ensuring the ongoing quality of drinking water

Option 1 – Remake the 2015 Regulations

Under the existing Regulations, the quality of drinking water as reported against the limited number of drinking water standards has been consistent. The limited number of specified standards does not provide an optimal basis for comprehensive and holistic monitoring by water suppliers and the regulator to identify trends and plan for ongoing maintenance of quality and where needed, improvement of water quality. Remediating actions and planning are most often focussed on incidents relating to risk or complaints about water quality, rather than proactive improvements.

Further, under this status quo option, turbidity is the only aesthetic-based standard, which means there is no statewide benchmark for aesthetic standards to work towards to meet community expectations. The status quo does not measurably aid in long term planning by water agencies and the regulator in ensuring the ongoing quality of drinking water and for this criterion, is not considered an improvement on the base case.

Option 1 is scored at 0 which is equal to the base case.

Option 2 – Adopt ADWG's guideline values as standards

This option would create comprehensive minimum drinking water quality standards for the aesthetic quality of drinking water, to drive forward planning and investment for ongoing improvement in water quality. It would represent a large shift in regulatory requirements for managing the aesthetic qualities of water. Enforceable standards would influence water suppliers to maintain monitoring and treatment processes that would over time support greater system resilience to cope with projected source water deterioration, due to climate change, land use or aging infrastructure. This option would also provide a large amount of reported information to the Secretary to support their Statewide and long-term overview functions under the Act.

Investment in aesthetic qualities should take account of community preference and expectations, noting aesthetic guideline values are focussed on acceptability of water to the consumer rather than significant risk to health.[35] These costs are predominantly applicable to small regional groundwater supply systems that would require significant upgrades such as the installation of reverse osmosis treatment infrastructure, with many water suppliers also incurring costs in managing levels of pH within the guideline values. This option would ensure that aesthetic qualities of drinking water would be prioritised to a much greater extent than under the base case, making this option substantially superior to the base case.

Option 2 is scored at +8 relative to the base case.

Option 3 – Adopt ADWG's guideline values as standards with rolling average applied to aesthetic values

Under this Option, the Regulations would set comprehensive aesthetic standards, albeit more conservative as compared to Option 2 (based on rolling annual averages rather than point in time measurements as in Option 2), driving water suppliers to plan to ensure ongoing compliance over time. As under Option 2, detailed standards and associated reporting encourages long-term planning and will allow for robust systems to cope with water quality sources deteriorating over time, representing a significant improvement on the base case and status quo. The sampling and reporting required under this option provides insight for water suppliers and the Secretary about trends in water quality vis a vis the prescribed guideline values, which will inform suppliers and the Secretary as to where action is required over the long term to maintain or improve aesthetic quality. The rolling annual average standards in this Option do not alter the value of this reporting for long term planning purposes as compared to reporting on point in time non-compliance under the standards in Option 2. Under this Option that reporting is less frequent and more targeted, and would provide sufficient information to the regulator to make informed decisions. For these reasons, Option 3 is substantially better than the base case and receives the same benefit score for this criterion as Option 2.

Option 3 is scored at +8 relative to the base case.

[35] 'With regard to aesthetic characteristics, what is acceptable or unacceptable depends on public expectations and can therefore be determined by water authorities in consultation with consumers, taking into account the costs and benefits of further treatment of the water.' See page 5: NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

Costs

Option 1 – Remake the 2015 Regulations

Under Option 1, representing the existing Regulations, water suppliers incur very minor notification and reporting costs associated with reporting on analysis of samples primarily for the prescribed standards for *E. coli*, TTHMs and turbidity, and otherwise in accordance with their sampling program under requirements to notify under section 18 of the Act and report on sample analysis results where water does not comply with the standards. These costs are minimal as reporting is infrequent. The relative scale of any costs additional to the base case are small due to relative size to other costs considered in this analysis.

Option 1 is scored at -0.5 representing a small incremental cost relative to the base case

Option 2 – Adopt ADWG's guideline values as standards

Option 2 introduces a significant increase in drinking water quality standards that water suppliers must comply with, as compared to Option 1. Under Option 2, pH would have a mandated testing frequency for water suppliers, however this frequency (monthly) does not exceed the frequency of testing for any water suppliers in their current water sampling programs.

Under Option 2, most agencies would be likely to incur significant costs in investing in treatment for pH, TDS, ammonia and other parameters that may be localised to specific supply systems, and would incur administrative costs to report exceedances of aesthetic guideline values. They may also incur administrative costs to apply for a variation to a prescribed aesthetic standard under section 19 of the Act or an exemption from a prescribed standard under section 20. The costs of this Option are the highest of all of the regulatory proposals detailed in this RIS and all MCA costs across this RIS are scaled against this maximum cost difference from the base case. The total industry cost for this option is about $25.5m.

Option 2 is scored at -10 relative to the base case.

Option 3 – Adopt ADWG's guideline values as standards with rolling average applied to aesthetic values

Under Option 3 some regional water suppliers will incur costs associated with improvements to treatment processes to ensure compliance with the standards, particularly those who manage ground water sources (such as bore water), which can be more susceptible to naturally elevated levels of compounds that impact taste, odour and appearance. A small number of water agencies may also need to add additional post-treatment pH control to comply with the relevant standard, particularly in water treatment systems that use chloramination and/or have distribution systems that have a significant amount of concrete piping. Water agencies will also incur costs to prepare and submit summary reports on exceedances of aesthetic guideline values and the regulator will incur costs to analyse these reports. The total industry cost for this option is about $7.9m.

Option 2 is scored at -3 relative to the base case.

Identifying the preferred option

Option 3 – Adopt ADWG's guideline values as standards with rolling average applied to aesthetic values is the preferred option as it has the highest weighted score in the MCA.

Option 3 is preferred because it reduces risks as it sets clear health-based standards that will drive better-informed risk reduction activities. In addition, Option 3 balances providing the regulator with accurate and timely information without unnecessarily burdening water suppliers with reporting requirements and the regulator with too much high-frequency data to process. Option 3 promotes better consideration of aesthetic values by water suppliers, especially for long-term investments in water quality improvements, while balancing this with potential costs to water suppliers and community expectations. Option 3 imposes substantial costs on water suppliers, primarily those which will need to make investments in new treatment plants and processes. The Department expects the benefits of Option 3 to exceed the additional costs.

Table 5: Summary of MCA scores for water quality standards

MCA criteria	Weighting	Option 1	Option 2	Option 3
Risk to health	30%	1	3	3
Reg oversight	10%	1	4	8
Water quality	10%	0	8	8
Costs to gov and agencies	50%	-0.5	-10	-3.0
Weighted MCA score		0.15	-2.90	**1.00**

9. Preferred options – the proposed 2025 Regulations

This chapter summarises the preferred regulatory options based on the assessments in Chapters 5 to 8, as the key elements of the proposed 2025 Regulations. A summary table of preferred options in the proposed Regulations, including a rationale for each change and a summary of how each change will be implemented, is provided in Appendix 2.

Risk Management Plans

Two options were considered in Chapter 5 for Regulations about risk management plans – Option 1 – Remake the 2015 Regulations and Option 2 – Strengthen RMP requirements. Option 2 is the preferred approach.

In managing risks to drinking water quality, prevention is key. Risk management planning enables water agencies to proactively address and mitigate risks to drinking water quality. It involves understanding the entire drinking water supply system, identifying and assessing risks, detailing emergency management procedures and implementing preventative measures to manage risks from catchment to consumer. It also involves balancing the need for timely intervention with the avoidance of unnecessary measures. Failing to act when necessary can pose serious risks to public health, while overly cautious responses may lead to unintended social and economic impacts.

Victoria's regulatory framework requires implementation of a structured, risk-based approach to managing the quality and safety of drinking water and regulated water supplied to the public. The regulatory framework was originally designed to facilitate compatibility with the ADWG, which provides a best-practice framework for managing risks to the safety and quality of drinking water, including both health-based and aesthetic considerations.

The RMP requirements in the 2015 Regulations broadly align with the ADWG's framework for managing drinking water quality. However, the principles-based nature of the 2015 Regulations means that some core risk management expectations are not explicitly defined. As a result, there is potential for variation in how agencies interpret and implement regulatory requirements, particularly in areas where greater specificity may be required to ensure alignment with best-practice water quality management.

The proposed 2025 Regulations include the same RMP requirements as the 2015 Regulations, with changes to further specify core elements of the ADWG Framework in the proposed Regulations – see subregulations 6(l), (n), (o) and (q) – to establish consistent expectations for risk management aligned with best practice, providing greater clarity for water agencies on what is required to achieve these benchmarks. These changes are designed to enhance the RMP audit framework, enabling more effective identification of areas for improving RMPs and providing better regulatory intelligence. This will give the department and the community confidence that water agencies are achieving, or working toward, the highest benchmarks of risk management and mitigation. These changes will also provide the Health Regulator with greater flexibility to apply a risk-based approach to RMP audits, enabling proportionate regulatory action when water agencies do not meet these benchmarks.

The proposed changes aim to balance prescriptive requirements for core risk management elements with principles-based requirements that allow agencies sufficient flexibility to tailor their risk management approach to their specific circumstances and adapt to evolving best practice management of drinking water supplies, such as those identified in the ADWG Framework.

Water sampling localities

Two options were considered in Chapter 6 for Regulations about drinking water sampling localities: Option 1 – Remake the 2015 Regulations and Option 2 – Remove gazettal requirement. Option 2 is the preferred approach.

Water sampling localities are discrete geographical areas that are representative of the drinking water supplied to that area. The process of defining water sampling localities forms part of best practice for designing and managing a drinking water quality monitoring program, especially for large and complex distribution systems.[36] Under the 2015 Regulations, water suppliers can submit water sampling locality proposals either on their own initiative or as directed by the Secretary. All locations supplied with drinking water must be within a water sampling locality boundary. This ensures that water samples collected are representative of the drinking water supplied, enabling water suppliers to identify issues related to drinking water sources, treatment processes, or distribution, and to identify the delivery points supplying drinking water to customers within a water sampling locality.

The proposed 2025 Regulations include changes to the processes of specifying sampling localities so that they are determined by water suppliers by reference to specified factors, and documented in the supplier's RMP, with the Secretary able to direct a supplier to change a water sampling locality if of the view that the locality is not representative of the water supplied, and if they believe that drinking water is being supplied in an area that is not covered by a sampling locality is able to issue a direction for an appropriate new or varied locality to be specified. Changes to localities made by suppliers are reported to the Secretary and noted in the supplier's annual report. This is more efficient for both the department and water agencies, while ensuring appropriate levels of regulatory oversight and control are maintained.

Note: the proposed 2025 Regulations published with this RIS use the term 'water sampling areas' instead of 'water sampling localities,' for clarity of drafting. They include provisions that require water suppliers to specify water sampling areas and develop a water sampling program, as well as to document those things in their RMP. This is for clarity of drafting and for certainty, because other provisions of the proposed 2025 Regulations refer to the water sampling areas and the water sampling program so there must be certainty about how they are determined. The matters to be considered and documented in setting water sampling areas and a water sampling program are the same in the proposed 2025 Regulations as they are in the 2015 Regulations. The 2025 Regulations provide that water sampling localities specified in the Government Gazette under the 2015 Regulations are taken to have been set by

[36] The ADWG defines water sampling localities as 'water quality monitoring zones': NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

the relevant water supplier under the 2025 Regulations, so no actions are required by water suppliers under the 2025 Regulations in order to establish those under the 2025 Regulations.

Managing microbial risk

Three options were considered in Chapter 7 for Regulations about management of microbial risk: Option 1 – remake the 2015 Regulations, Option 2 – Align RMP with ADWG's microbial HBT framework, and Option 3 – Align RMP with ADWG's microbial HBT framework, with associated reporting. Option 3 is the preferred approach.

The greatest risk to public health from drinking water is the presence of disease-causing microorganisms (pathogens) in the water.[37] Microbial HBT frameworks are a risk management approach that has been designed to assess and manage the microbial safety of drinking water supplies by ensuring that treatment processes are proportionate to the risk. The concept of microbial HBTs is further defined in Box 4.

The 2015 Regulations currently require water agencies that operate and maintain a drinking water treatment process to document in their RMP the methodology used to ensure the microbial safety of drinking water quality. These requirements are intended to be consistent with the application of a microbial HBT framework. However, there are inconsistencies across the sector in terms of the microbial HBT framework adopted, with a number of agencies still yet to fully incorporate the ADWG's microbial HBT framework, which reflects the best available Australian evidence for microbial risk management.

The proposed 2025 Regulations incorporate RMP requirements relevant to microbial HBTs that are consistent with the ADWG's framework. This reform aims to bring Victoria's regulatory framework in line with national guidance on how microbial HBTs should be applied and assured. By adopting this approach, Victorian water agencies will be held to a consistent, high standard for controlling microbial risks in drinking water. It is noted that leading water agencies are already incorporating the ADWG's microbial HBT framework in acquitting their current requirements.

Additionally, the proposed 2025 Regulations complement the consistent adoption of a microbial HBT framework with a related regulatory reporting requirement. It is intended that reporting on microbial HBTs will provide the Health Regulator with information relevant to shortfalls in meeting defined safety targets. This information would enhance regulatory intelligence on the microbial risk profile of specific drinking water supply systems.

In the proposed 2025 Regulations published with this RIS these provisions are drafted to come into operation on 6 July 2026 to allow time for implementation preparation. Feedback is sought on this timeframe in response to this RIS.

Drinking water quality standards

Three options were considered in Chapter 8 for Regulations to prescribe water quality standards: Option 1 – Remake the 2015 Regulations, Option 2 – Adopt ADWG's guideline

[37] NHMRC, NRMMC, *Australian Drinking Water Guidelines*, 2011.

values as standards and Option 3 – Adopt ADWG's guideline values as standards with rolling average applied to aesthetic values. Option 3 is the preferred approach.

Under the Act water suppliers are required to ensure that water meets prescribed quality standards (section 17). This is a core obligation and key plank of the regulatory framework. It sets a regulatory minimum threshold for drinking water to ensure that it is safe to drink and meets community needs and expectations.

Monitoring and reporting water quality against the standards is a key aspect of the risk management activity required of water suppliers, and a key source of regulatory intelligence for the regulator. Under the existing Regulations water suppliers are required to document in their RMP details of a water sampling program, including how the parameters and sampling frequency in that program will assist them to monitor compliance with the prescribed water quality standards (Regulation 8(d)(vi)(A)). Under the Act, suppliers are required to notify the regulator then they become aware water does not meet or is likely to not meet the standards, and to report to the regulator on sampling results that indicate non-compliance (section 18). Under the existing Regulations they are also required to collect samples in accordance with the standards and their water sampling program, have those samples analysed and report to the regulator on the details of sample analysis that shows water has complied with the standards (Regulations 13-15).

These elements of the current regulatory framework are consistent with the ADWG, which sets out the best available scientific evidence about thresholds for various characteristics in water that pose a risk to human health and aesthetic acceptability. The ADWG also outlines risk management frameworks that use those thresholds to target the design and improvement of treatment and monitoring processes.

The proposed 2025 Regulations address risk to drinking water supply and improve regulatory oversight, by directly incorporating health-based thresholds from the ADWG into the prescribed standards. To improve regulatory oversight and drive longer-term improvement to water quality they take a tailored, relatively conservative approach to mandating aesthetic thresholds. This takes into account stakeholder feedback about the complexity of measuring and maintaining aesthetic characteristics, and noting that community preferences about these are more subjective and complex. This is reflected in section 19 of the Act, which allows an application to the Minister for variation of an aesthetic standard, following appropriate community consultation. It is not intended that a significant increase in regulatory requirements for aesthetic characteristics should divert investment from improvements required to meet health-based standards, or place upward pressure on prices charged for water in a manner inconsistent with community expectations. Given this complexity the proposed Regulations set a rolling annual average compliance threshold for the purposes of section 17 of the Act and a range for compliance for pH. In addition, the proposed Regulations do not incorporate future updates to the ADWG in relation to aesthetic parameters, allowing policy design and impact analysis to be completed in the future about whether and how any such updates are incorporated into the mandated standards.

Other elements of the proposed 2025 Regulations

The RIS evaluates a range of options that have substantive impacts on the sector. This RIS does not undertake a detailed options analysis for areas of the 2015 Regulations where no changes are proposed, or where proposed changes do not result in a significant and measurable impact.

Minor regulatory changes proposed but not costed

In addition to the changes detailed above, the proposed 2025 Regulations include some elements that represent more minor changes from the 2015 Regulations, as follows:

- A small change to the required RMP content relating to a water sampling program, to remove the prohibition on sampling from the same location on consecutive occasions
- A RMP requirement to document a commitment to drinking water quality management
- A RMP requirement to document an improvement plan
- Infringement offences and penalties

Consecutive sampling

The proposed 2025 Regulations remove a current requirement that water suppliers must include in their RMP details of how their water sampling program ensures that samples are not taken from the same sampling point on two consecutive occasions (existing Regulation 8(1)(d)(v)). This specific requirement is not considered necessary or appropriate. The primary relevant protection for public health is the current and proposed requirement for the water sampling program to be designed so that the sampling is representative of the water being supplied. It is considered appropriate to allow suppliers flexibility in designing their sampling program within the scope of the other regulatory requirements for that program and the supplier's obligations to ensure water meets the prescribed water quality standards. Consultation indicates that this reform will have slight but not measurable cost impact and no potential adverse impact on health is expected by the Department. Accordingly, this reform is not analysed further in this RIS.

Commitment to drinking water quality

The proposed 2025 Regulations include a new requirement that RMPs must document a commitment to drinking water quality that has been endorsed by the governing body of the water agency. This is consistent with the ADWG and consultation has indicated that agencies already have such commitments and documentation in place. As such, there is no anticipated regulatory burden from this proposal, and it is not analysed further in this RIS.

Improvement plans

Continuous improvement and review of a water agency's RMP (sections 7(1)(c) and 8(1)(c) of the Act) are a core element of the Victorian regulatory framework. The proposed 2025 Regulations include a new requirement that RMPs must document an improvement plan that sets out details of the steps to be taken to improve water quality – including steps taken to meet the ADWG's health-outcome target (this is detailed further in Chapter 7 in the impact analysis relating to microbial HBTs). This proposed RMP requirement to document an improvement plan is consistent with the AWDG and consultation has indicated that agencies already have such plans in place. This requirement formalises the expectation that continuous

improvement activities, already embedded within the RMP framework, are documented in a centralised location to support the RMP audit process. As there is minimal anticipated regulatory burden from this proposal, and it is not analysed further in this RIS.

Infringement offences and penalties

Infringement notices offer an alternative method for dealing with less serious offences, giving the person to whom an infringement notice is issued the option of paying a fixed penalty, rather than proceeding to a court hearing. This system uses incentives such as convenience of payment, lower fine levels than in open court, the avoidance of an adverse court finding and saving of legal and other costs to address non-compliance in an efficient and timely manner. The infringements system provides net benefits for all involved parties – the offender, the prosecutor, the courts and the justice system overall.

The proposed Regulations prescribe infringement offences and penalties relating to compliance with the Act and its subordinate legislation (the Regulations). The infringement offences and penalties that have been set in these Regulations ensure that there are appropriate and proportionate penalties in place to aid the enforcement of compliance by the regulator against individuals and entities who breach their obligations under the Act.

The infringement penalty amounts have been set in accordance with the Attorney General's Guidelines to the *Infringements Act 2006*, in consultation with the Fines and Enforcement Services are of the Department of Justice and Community Safety. The setting of the infringement penalty amounts took into consideration for each offence under the Act and proposed Regulations, the appropriateness of an infringement as an enforcement tool, the gravity of the offence (i.e. is it sufficiently low in severity to be infringeable), whether the offence is sufficiently clear and easy to establish and whether the consequences for the offence are appropriate if enforced by infringement. An assessment was also carried out to ensure the proposed infringement penalties were within the maximum amounts permitted in the guidelines, were proportionate to the offending behaviour and maximum penalty in the Act and Regulations, were consistent with comparable offences in other legislation and were unlikely to have an undesirable financial impact on the fine recipient.

The costs and benefits of the proposed infringement framework have not been modelled in detail in this RIS. It is acknowledged that having infringements could result in some impact on the behaviour of regulated parties (i.e. encouraging improved compliance which may increase costs) however on balance with the other regulatory levers (e.g. maximum penalties in the Act) and non-regulatory incentives (e.g. a desire to maintain public confidence in the water supplied) the additional impact of penalties and infringements prescribed in the Regulations is likely to be minor. The rate of compliance with the Act and Regulations is generally high, and the Health Regulator takes a risk-based approach to compliance and enforcement. The amendment to the Act to allow infringement notices to be issued was part of a suite of reforms to establish consistent mid-range enforcement powers across several Acts administered by the Health Regulator, to allow targeted, graduated and proportionate enforcement action. Furthermore, the costs of complying with these existing offence provisions are considered to attach to the offence provisions themselves, and are considered necessary and justified to protect public health. Infringement notices will be issued in instances of less serious non-compliance and not in relation to offences that are complex (such as those that involve a

mental element) or that are considered to be more serious in nature, such as provision of false or misleading information to the public

A total of 9 infringement offences and associated penalties are proposed to be prescribed in the Regulations, 4 in relation to offences in the Act and 5 in relation to the Regulations made under the Act. Proposed infringement penalties range from 2 to 10 penalty units (or $395.18 to $1,975.90.

The offences relate to:

(a) An auditor failing to report audit findings to the Secretary to the Department (section 12)
(b) An auditor auditing an RMP they prepared or assisted to prepare (section 14)
(c) An auditor failing to comply with a condition imposed by the Secretary (section 15)
(d) Obstructing an authorised officer (section 49)
(e) Failure to collect water samples (proposed Regulation 17)
(f) Failure to ensure water samples are analysed (proposed Regulation 19) and Failure to report on the results of water sample analysis (proposed Regulation 20).

Audits and audit certificates

The proposed 2025 Regulations also remake existing Regulations 9, 10 and 11 and Schedule 1 in substantially the same form. These are administrative in nature and set out essential elements of the audit process, being the documents specified for the purposes of an audit, per section 10(2) of the Act, the requirements for approved auditors and the form of a certificate used by an auditor to report findings of non-compliance. As these provisions are not changing, and would still be largely operationally intact in the base case, remaking them has not been analysed further in this RIS.

10. Proposed 2025 Regulations - overall impact assessment

Total costs of Regulations

Through the MCA process, a preferred option was identified for each key element of the Regulations set out in Chapters 5 to 8. Each MCA estimated benefits relative to the base case and also an estimate of the incremental costs attributable to each option. Costs have been estimated based on information provided by Victorian water agencies, industry and academic expert advice, literature reviews, Department staff expert opinion and survey data submitted by water agencies throughout this review of the Regulations.

All costs were scaled in the MCA against the highest total cost option identified to ensure consistency. Total costs are estimated over 10 years in Net Present Value (NPV) terms with a real discount rate of 4% applied in line with the Victorian Guide to Regulation. Costs are split between Metro water agencies (Melbourne Water, Greater Western Water, South East Water and Yarra Valley Water) and the remaining 16 water agencies, nominally 'Regional Water agencies', for the purposes of this analysis.

Table 6: Total industry costs

Regulatory activity	Preferred option costs $m	Regional costs $m	Metro costs $m
Strengthening RMP requirements	$7.7	$5.6	$2.2
Aligning HBTs with the ADWG	$7.2	$7.2	$0.0
Drinking water quality standards	$7.9	$7.4	$0.5
Water sampling localities	$0.3	$0.1	$0.2
Total industry costs	$23.1	$20.3	$2.8

In addition to the total industry costs indicated above, Government will save about $160,000 over the life of the Regulations in printing costs to publish changes to water sampling localities in the Government Gazette.

Therefore, the total cost of the Regulations including both industry and Government costs is approximately $23.0m.

As the table above indicates, regional water agencies will incur the vast majority of the costs associated with the proposed Regulations, with Metro agencies only having 12% of the total costs, with these costs relating only to administrative costs, primarily associated with reporting requirements related to the proposed changes. Regional agencies incur 100% of the costs of aligning HBT frameworks with the ADWG, as all water treatment systems that are not aligned with the ADWG HBT framework – and with no current plans to move to that framework – are managed by regional water suppliers.

Similarly, all of the substantial cost implications from complying with the proposed new aesthetic drinking water standards are attributable to regional water suppliers. These costs are predominantly applicable to small regional groundwater supply systems. Customers of the

regional water agencies that incur these higher costs to comply with the requirements in the proposed Regulations will receive the highest benefits relating to improvements in managing risks to health and in ensuring the aesthetic quality of their drinking water.

Strengthening RMP requirements

This cost category has implications for all water agencies in making administrative changes to RMPs to reflect proposed requirements in the 2025 Regulations. Some water agencies will only incur relatively small costs in additional resourcing hours to make changes to RMP reporting (or potentially minimal to no costs for larger organisations who can re-prioritise resourcing away from more discretionary projects), however there will be some water agencies who will have more substantial costs associated with these changes. In addition to administrative costs in documenting requirements in RMPs, these agencies will also have compliance costs associated with implementing changes to better align their risk management to the best-practice principles outlined in the ADWG, such as the consideration of emerging risks.

Overall, the combined changes to strengthen risk management processes and reporting are largely related to administrative expenses. The total costs of these changes are similar in total magnitude to other changes to the Regulations. Because all water agencies would incur some costs to comply with these requirements, the costs of this change are more evenly spread across the sector. Other changes, which are likely to result in substantive investment in water treatment systems, only apply to a limited number of the water agencies.

In total, these costs account for almost a third of the total industry costs of the 2025 Regulations over the 10-year analysis period at 33.4% of total industry costs or approximately $7.7 million NPV over the ten-year life of the Regulations.

Aligning HBTs with the ADWG

Implementing microbial HBT frameworks has cost water agencies tens of millions of dollars in enhancements in water treatment systems over many years. RMP requirements in the existing Regulations are not prescriptive in requiring any specific microbial HBT framework. Nonetheless, water agencies generally recognise the ADWG's framework as the most relevant contemporary framework for managing Victorian drinking water supplies. As such, nearly all water supply systems are in alignment with the ADWG's HBT framework, or in the process of moving to the ADWG in absence of an explicit requirement to do so in Regulations.

Therefore, only the costs associated with water agencies in undertaking actions to align with the ADWG HBT framework – actions that they would not otherwise have taken – are attributable costs to the proposed changes. Assigning a source water category is a cost only attributable to a small minority of the total amount of raw water storages in the state, as most agencies have done or have plans in place to do so. Similarly, the administrative costs associated with alignment with the ADWG's microbial HBT framework for water treatment systems only applies to a small number of regional water suppliers.

A further subset of regional water suppliers is also likely to incur capital costs in additional water treatment for systems that fall below the 'safe zone' in ADWG's microbial HBT framework as further described in Chapter 7. For this analysis, UV treatment costs have been used to estimate these costs. While this may not be the most appropriate or only option for all of these treatment systems to improve towards the HBT, UV has been chosen as the most common additional treatment for updating water treatment systems.

Overall, this proposed regulatory change makes up 31.0% of the total estimated incremental industry costs of the proposed Regulations, with all of these costs attributable to regional water agencies. The total cost of this proposal to industry is estimated at $7.2 million NPV over ten-years.

Drinking water quality standards

The preferred option for drinking water quality standards outlines a range of changes to expand drinking water quality standards in the proposed Regulations, however, these changes should not fundamentally change how water suppliers design and implement their existing water sampling planning and practices. As such, the proposed changes do not incur incremental costs in sampling and testing against the guideline values listed in the ADWG, as this aligns with current industry practice.

The incremental costs identified for this analysis relate, in part, to the new reporting obligations imposed by the proposed Regulations. The majority of the costs are due to the assumed additional water treatment that water agencies will undertake to comply with the aesthetic standards where they otherwise would not have.

Overall, the proposed changes outlined to drinking water quality standards outlined in this RIS account for an estimated 34.2% of the total identified costs to industry. Reporting obligations account for approximately 20% of the costs of this change.

The RIS attributes no incremental costs to the proposed regulation change incorporating the ADWG health-based guideline values as drinking water standards. This is due to water suppliers indicating in consultation that they currently directly reference the ADWG guideline values when assessing risks to public health associated with relevant characteristics found in drinking water samples taken.

Regional water suppliers will incur the vast majority of costs associated with this change under the assumptions of this RIS, reflecting that they service large areas of the State, with a range of challenging raw water supplies including unprotected waterways and groundwater sources, and limited customer bases from which to spread costs between. The Department recognises this context and anticipates that a number of water suppliers will have supply systems that will struggle to comply with the standards initially. These water suppliers are likely to apply under section 19 of the Act for a variation of an aesthetic water quality standard.

As it is difficult to estimate on how many occasions a water supplier may wish to seek such an exemption and it is not possible to pre-empt what decision a current or future Minister for Health may make on an application. To reflect that on some occasions water suppliers may be granted a variation by the Minister this RIS reduces the total estimated costs for all water suppliers to comply with the aesthetic standards by 25%. This indicative assumption, made for the purposes of analysis, is incorporated to the potential impact of this flexibility mechanism on costs attributable to the Regulations.

Costs relating to treatment improvements required to meet the proposed aesthetic drinking water standards have been estimated based on results from the survey sent to water agencies to inform this RIS, from water agency annual report information on aesthetic parameters and from expert advice on costings. Most of the costs estimated are related to small regional supply systems, predominantly sourcing water from groundwater sources. These sources are frequently high in mineral contents that negatively impact on the desirability of drinking water

and require costly reverse osmosis treatment to remediate. The remainder of the substantive costs to comply with the aesthetic standards relates to costs for a small number of water supply systems that may require additional treatment to manage pH levels within the prescribed drinking water standards range.

25% of costs attributable to the new aesthetic standards relate to costs for water agencies to provide quarterly summary reports to the regulator on aesthetic parameters that exceed guideline values, regardless of whether the exceedances lead to the annualised average of results not meeting the aesthetic standard. These costs are estimated based on the approximate number of exceedances that water agencies estimated that they would have on average annually.

The total cost of the proposed Regulations to industry is estimated at $7.9 million NPV over ten years.

Water sampling localities

The changes outlined in this RIS to remove the requirement for water sampling localities to be approved by the Secretary and published in the Victorian Government Gazette are expected to reduce a small amount of administrative burden on both the regulator and water agencies relative to the existing Regulations. In particular, it is expected to save industry about $125,000 over ten years and save Government about $164,000 over ten years.

As there is no requirement under the Act related to water sampling localities, this means that relative to the base case of no Regulations, there is still a small total industry reporting cost of $309,000 over ten years. This amounts to approximately 1.2% of the total incremental costs of the Regulations.

Benefits of the preferred option

The preferred option is expected to deliver a range of benefits, primarily related to protecting public health through the provision of safe drinking water. These benefits are largely driven by improved regulatory intelligence, which supports strengthened oversight through clearer regulatory requirements and drives outcomes to help ensure drinking water supplies remain safe. Oversight is vital as the final safety of drinking supplied to consumers' water hinges upon a multitude of systems and assets working effectively for ensuring that the overall safety for the protection of public health.[38] These reforms will allow the regulator to better target its efforts in ensuring HBT systems are operating safely, as well as better targeting auditing to risks and ensuring appropriate oversight and management of aesthetic issues is occurring. The total resourcing costs to the regulator are not expected to significantly change, instead regulatory efforts will be reduced in responding to minor incidents, approval and processing of water sampling localities and through the better risk-based auditing.

The preferred also recognises the need for systems that support both current and future improvements in water quality, to ensure that reticulated drinking water remains the drink of choice for Victorian customers. This reduces the risks of individuals opting for less healthy or

[38] Merrett, H. C., Chen, W. T., & Horng, J. J, 2020. A Structural Equation Model of Success in Drinking Water Source Protection Programs. Sustainability, 12(4), 1698, viewed 1 April 2025, <https://doi.org/10.3390/su12041698>.

potentially unsafe alternatives, like poorly maintained private water supplies. Introducing aesthetic drinking water quality standards also provide a means to drive long-term improvements in the aesthetic quality of drinking water, while the adoption of a contemporary microbial HBT Framework ensures that investments in treatment to address microbial risks is guided by the best Australian evidence. In addition to improvements in water quality, households are also expected to benefit from reduced wear and tear on internal plumbing and appliances due to decreased scaling and corrosion.

As the benefits are difficult to quantify, the primary analysis in this RIS relied on an MCA approach. Assessment of the benefits in the MCA is inherently subjective. To ensure the analysis is robust, the analysis below compares the total costs associated with the new Regulations against the benefits required for the Regulations to have a net benefit (a break-even analysis).

Break even analysis

The primary goal of the Act and the Regulations is to ensure that Victorians are supplied with safe drinking water. The preferred option outlined in the preceding chapters of this RIS is intended to deliver benefits of reducing risks and consequences of contamination to drinking water supplies. Estimating these benefits is an inherently difficult task, as there is limited relevant data available to reliably estimate the reduction in risk and potential consequences of low-probability, high-consequence incidents and events. As such, a break-even analysis is used to test the overall cost-effectiveness of the preferred option against the likelihood and magnitude of drinking water contamination incidents to understand the benefits of avoided costs that would need to be realised for the Regulations to 'break-even' over the ten-year life of the Regulations.

The break-even analysis uses the Havelock North incident detailed in Chapter 2 as the basis of estimating the avoided costs of a significant contamination event. The Havelock North incident was used because it is relatively recent, occurred in a comparable institutional setting and has a high-quality economic analysis to draw upon.
This incident showed similarities between the regulatory environment in New Zealand at the time and that currently in Victoria, particularly in the use of a risk-based approach in requiring RMPs (or Water Safety Plans in New Zealand), which are subject to third-party audit. Both frameworks also have limited regulatory oversight and rely on the competence and transparency of water agencies to identify and report risks. The Havelock North incident was also deemed suitable because of the detailed costings available from the incident. The 2017 report on the economic costs of the Havelock North incident,[39] undertaken by consultancy firm Sapere, accounted for health-related costs, government and business costs, and also household inconvenience costs.

These costs have been converted to 2025 Australian values by:

[39] Ministry of Health, 2017, The Economic Costs of the Havelock North August 2016 Waterborne Disease Outbreak, New Zealand Government, viewed 14 March 2025, <https://www.health.govt.nz/publications/the-economic-costs-of-the-havelock-north-august-2016-waterborne-disease-outbreak#:~:text=Summary,normal%20activities%20during%20the%20outbreak.>

- Estimating household inconvenience costs (in hours) using the current Australian minimum wage.
- Estimating the burden of disease cost (in QALYs) to the current Australian value for a DALY.
- Converting all other costs to Australian dollars using the 2017 exchange rate and indexing those values to the present using the CPI.

This incident is used as a baseline for potential costs related to drinking water contamination events, with costs also scaled to other real-world incidents that have occurred to illustrate the potential scale of costs associated with significant incidents of contamination of drinking water supplies.

Table 7: Break even analysis

Scenario	Total costs $m	Avoided incidents to break-even
Small sized incident Havelock North, 5,506 people impacted)	$36.0	0.64
Medium sized incident (Östersund, 27,000 people impacted)	$176.7	0.13
Large sized incident (Milwaukee, 435,000 people impacted)	$2,846.7	0.01

Using a Havelock North sized drinking water contamination event (a population of 14,000 with approximately 5,500 people directly impacted by illness) illustrates that if one such event was avoided through making these new Regulations, then they would more than 'break-even' with the costs attributable to the making of the proposed Regulations.

Alternatively, if a single larger-scale incident – such as an Östersund scale event, where the risks could likely have been mitigated through a microbial HBT framework – was prevented once in a 77 year period, noting that the lifespan of a set of regulations is 10 years, then the Regulations would break even. Equivalently, the proposed Regulations would break even if they reduced the likelihood of an Östersund scale event by 1.3% each year.

The economic impact of an avoided incident the size of the Milwaukee contamination event, which involved a cryptosporidium outbreak that impacted approximately 430,000 people of the 1.7 million population of the city in 1993, when scaled to the costs of the Havelock North incident, would result in over 90 times the cost of making the proposed Regulations. This means that if made in perpetuity, these Regulations would break even if one such event was prevented every 1,240 years. Equivalently, the proposed Regulations would break even if they reduced the likelihood of a Milwaukee scale event by 0.1% each year.

Converting the costs of the proposed Regulations to a break-even amount of population impacted by a contamination event would see the Regulations break-even if an incident impacting 3,508 people was prevented every ten years.

Major drinking water contamination events in developed countries are rare enough that it would be unlikely that a major incident would occur over the coming decade even under the base case explored in this RIS of allowing the existing Regulations to expire without

replacement. As discussed above, given the low frequency of significant contamination incidents in developed countries, it is impossible to estimate the probability of a significant incident in Victoria over the next ten years. Therefore, the Department cannot estimate the reduction in probability of a significant contamination incident from the proposed Regulations. Nonetheless, the breakeven analysis provides important context for understanding the potential scale and nature of the risks being managed under the regulatory framework. While the probability of such events occurring in Victoria may be low, these examples demonstrate that their consequences – if realised – can be severe.

While significant contamination incidents are very rare, smaller fluctuations in the concentration of contaminants in drinking water occurs more frequently. These fluctuations can be expected to occasionally cause a small number of people to become mildly ill. The ADWGs have a health-based target value of 1 µDALY pppy. With Victoria's population of approximately 7 million people, this is equivalent to about 7 disability adjusted life years across the entire population or 1,169 mild infections per year across the state. Therefore, the Department also assessed the breakeven level of diffuse health benefits from incremental reductions in risk. As the Department expects substantive improvements in water quality to occur for regional customers, the Department has focussed this analysis on regional customers. The total cost of the Regulations over 10 years for regional water agencies is expected to be approximately $20.1m. The breakeven number of avoided DALYs for regional costs is 83 over the life of the Regulations. There are approximately 700,000 customers in regional Victoria. With an average household size of 2.4, this is approximately 1.7m people. This means the Regulations are expected to cost $1.17 per person per year for regional Victorians. Further, this means that if the Regulations avoid one mild infection per 1,252 people per year, then the Regulations would break even for regional Victorians.

The total estimated cost of the Regulations is $23m over 10 years, which is $0.33 per Victorian per year for the next ten years, without adjusting for further population growth. The Department considers this to be a low cost for verification of quality of water for all Victorians over the course of a decade. As set out in Chapter 2, access to safe drinking water is essential for health and wellbeing, and proactive and precautionary risk management is essential to reduce the likelihood that the water supplied may be unsafe or unacceptable to Victorian communities. The impact of poor-quality water can be severe and widespread, and the activities required to monitor and control that risk are complex, including in light of emerging challenges such as climate change. While water quality in Victoria is generally good, there is a strong rationale for ongoing and evidence-based regulation to maintain quality and drive best practice by water agencies, both day-to-day and in the longer term. This decreases variation in risk management performance and water quality across the State and allows statewide regulatory oversight to monitor and address risks to public health where needed. The Department believes it is reasonable to expect that the reduction in risk to Victorians of unsafe drinking water is sufficient to justify the additional costs to the sector over the next ten years.

This is especially true once the precautionary principle is taken into account, that is, given the scale of potential harms, there is a strong rationale for early preventative intervention.

Sensitivity analysis

A sensitivity analysis was undertaken to understand the impacts of varying the costs for the preferred options of key elements of the Regulations set out in Chapters 5, 7 and 8 that addressed strengthening RMP requirements, aligning HBT frameworks to the ADWG and the changes to drinking water quality standards. The estimated preferred option costs for the RMP and HBT changes are sensitivity tested at 50% higher and 50% lower costs than the estimated costs, while to higher and lower amounts to test the impacts of these changes to cost assumptions on the break-even analysis.

The table below shows results for a 'central scenario' that reflects the preferred option costs identified in this RIS. The high and low-cost scenarios for the preferred options for Strengthening RMPs and HBTs are adjusted up or down by a total of 50% of the total estimated costs for this sensitivity analysis. For the drinking water quality standards costs, maximum cost estimates obtained for substantive drinking water treatment investments were chosen for the high-cost estimate with 50% of those costs being assumed to be removed through successful s19 variation applications. For the low-cost scenario, the identified preferred option costs for drinking water quality standards were chosen with the same 50% s19 variation discount applied as in the high-cost scenario.

Table 8: Sensitivity analysis of the preferred option $million

Sensitivity analysis costs	Central scenario	High-cost scenario	Low-cost scenario
Preferred option costs	$23.0	$43.4	$13.7

The costs estimated for this analysis are relatively uncertain as they apply to a wide range of water agencies with differing catchment, treatment and distribution systems across Victoria. A number of assumptions were required to prepare the analysis. Costs were estimated across a range of scenarios including where cost estimates were not available, had high variance or where there was a lack of agreement on information provided from different sources. Cost estimates based on reporting and other administrative efforts may be overestimated where the new requirements largely replicate existing practices for agencies closely aligned with the ADWG and where these would have continued without the Regulations. Likewise, if a higher than expected number of water agencies do not have internal resourcing capable of meeting requirements, the analysis may underestimate the costs.

HBT costs were estimated based on information provided by agencies that had already aligned with the ADWG or were in the process of doing so and had invested the costs associated with the move.

Complying with the changes to aesthetic standards is the modelled cost with the most uncertainty as estimates provided for this RIS varied significantly across sources. As such sensitivity was tested using the highest estimates of relevant treatment costs. As these very large costs are primarily related to water supply systems that service very small populations, it has been assumed for this sensitivity analysis that for this element of the total estimated costs (and related supply systems), that 50% of the time, a s19 application would be approved by the Minister in anticipation that the magnitude of costs relative to benefits of investing in

treatment for these systems would lead to alternative solutions being investigated for improving the local drinking water.

The table below tests the results of the high- and low-cost scenarios against the break-even analysis scenarios tested in the previous section.

Table 9: Break-even sensitivity analysis of the preferred option

Break-even	Central scenario	High-cost scenario	Low-cost scenario
Average costs of incidents avoided to break-even – small sized incident	0.64	1.20	0.38
Average costs of incidents avoided to break-even – medium incident	0.13	0.25	0.08
Average costs of incidents avoided to break-even – large incident	0.01	0.02	0.005

The Department considers that even under the high-cost scenario, it reasonable to expect the preferred option to break even over the life of the Regulations due to the reduction in risk provided by the Regulations. Therefore, the sensitivity analysis does not result in a change in which option is preferred under any of these scenarios.

Small business and competition impacts

A RIS should consider the effects of the proposed Regulations on both small businesses and on business competition overall. Competition can be hindered when businesses are limited or prevented from competing within markets due to regulatory impacts. Small businesses can be disproportionately affected by Regulations due to relatively limited resourcing to comply with any new requirements in comparison to larger businesses.

The Regulations apply to Victoria's water agencies, who while varying significantly in size, are all significant in funding and resources compared to small businesses.

Competition can be hindered when businesses are prevented or limited from being able to compete within markets due to regulatory interventions. Regulations in Victoria are required to include an assessment of the impacts on competition under the Competition Principles Agreement. Under the agreement, any new primary or subordinate legislation should not restrict competition except where:

- restriction of competition is required to meet the objectives of the legislation; and
- the benefits of the restriction outweigh the costs.

Restrictions on competition occur when there will be likely changes to the way a market functions due to the implementation of the proposed primary or subordinate legislation. Specifically, restrictions can occur where:

- the number or range of suppliers is limited
- the ability of suppliers to compete is limited
- the incentive for suppliers to compete vigorously is reduced.

The answers to the following questions in the affirmative or negative whether the proposed Regulations are considered to restrict competition.

Table 10: Competition analysis

Competition test	Answer	Explanation
Is the proposed measure likely to limit the number of producers or suppliers to: • only one producer? • only one buyer? • less than four producers?	n/a	Water agencies are Government controlled statutory monopoly suppliers of drinking water. As such, the Regulations do not impact on the number of suppliers as each area of supply only has one supplier.
Would the proposed measure discourage entry into the industry by new firms/individuals or encourage existing providers to exit the market?	n/a	As above.
Would the proposed measure impose higher costs on a particular class of business or type of service? (e.g. small business)	n/a	None of the water agencies subject to the Regulations are small businesses. However, there are significant differences in scale between the largest suppliers (Yarra Valley Water and South East Water) each of which have more customers than all regional suppliers in total. Overall, much of the costs of the Regulations fall on regional water agencies however these costs are unevenly distributed and related to localised factors rather than the general nature of these particular types of business, whose characteristics vary considerably across the state.
Would the proposed measure affect the ability of businesses to innovate, adopt new technology or respond to the changing demands of consumers?	No	The Regulations are non-prescriptive where appropriate to encourage water agencies to best cater the regulatory requirements to their unique circumstances. The changes to aesthetic standards have been identified specifically to enable customers to have their preferences catered to.

Given the nature of water agencies as statutory monopolies, the Department has assessed that there are no competition impacts of these Regulations. The Regulations impose different costs on different water agencies; however, this is due to intrinsic features of these water agencies (for example total population served, geographic distribution of customers, and source water characteristics).

11. Implementation and evaluation

Implementation of the *Safe Drinking Water Regulations 2025* will be focused on protecting the quality of drinking water supplies and reducing Victorians' risk of exposure to harm from unsafe water.

Consultation to inform development of these reforms has sought to provide the Department with a detailed understanding of potential operational impact of the reforms. It is recognised that these important reforms may require water agencies to update some of their current operational practices and documentation.

Feedback provided during consultation indicated that many water agencies are already achieving or working towards compatibility with the ADWG. It is expected that this will provide a sound foundation for auditors and agencies to understand and apply guidance issued by the Department, to implement the new elements of the Regulations.

The Department is committed to providing clear explanatory material to support understanding of – and compliance with – the updated Regulations, to support operational implementation and allow for consistent enforcement and better water quality outcomes for all Victorians.

Similarly, cross-agency collaboration with the government regulators who hold related responsibilities for safe drinking water (such as the ESC) will also help ensure that these complementary regulatory and oversight functions continue to operate in concert to deliver positive health and safety outcomes for Victorian communities.

Implementation

Phased implementation

In recognition of the different levels of preparedness of the water agencies to conform with the new requirements, consideration will be given to transitional arrangements. Where appropriate, staged commencement dates or phased enforcement strategies may be factored into the new requirements to allow additional time to achieve compliance. Consultation to date indicates this may be particularly relevant in relation to the proposed reforms relating to HBTs. The proposed Regulations published with this RIS provide that new requirements relating to HBT material in RMPs, and reporting on HBT performance, will come into operation on 5 July 2026, to allow time for preparation for implementation. Feedback is sought in response to this RIS on that timeframe and on any significant time that may be required to prepare for compliance with other provisions of the proposed Regulations.

Guidance and support

It is acknowledged that water agencies will require guidance to support them to achieve compliance with the new requirements and approved auditors will require guidance to inform their audit assessments. Guidance issued will be informed by stakeholder input, published on the Health Regulator website and promoted to water agencies and approved auditors once

published or updated. Feedback is sought in response to this RIS on the matters where guidance will be valuable to support compliance and RMP audit processes.

Risk management plans

The alignment of RMP requirements with the ADWG is intended to improve risk management practices and allow targeted operational improvement activity and risk-based regulatory oversight. The Department notes that water agencies and auditors may require specific guidance to clarify the new requirements to ensure they are understood.

Based on feedback received to date it is expected that this will be particularly valuable in relation to the new requirements for documenting: CCPs; an inspection and maintenance program; an improvement plans; and performance against HBTs (in particular the associated validation processes).

Water quality standards

The department has heard concerns about the regulatory burden imposed by compliance with the proposed standards, which bring the Regulations into line with ADWG. In response, it has adjusted proposed compliance reporting parameters in the Regulations and designed the compliance threshold for aesthetic standards to reflect sector feedback about fluctuations in aesthetic characteristics. The Department also notes that the Act includes flexibility mechanisms for situations where an agency is not able to comply with the requirements – namely section 19 where an agency seeks a variation in an aesthetic standard and section 30 for an enforceable undertaking. It is recognised that guidance on how these provisions will operate may be required to assist agencies to navigate those processes.

Water quality sampling and reporting

It is anticipated there may be a need for guidance for water agencies on

- Processes for the Secretary to determine frequency for sampling of a prescribed characteristic/parameter.
- Processes for the Secretary to direct a water supplier to change a water sampling area (water sampling locality in the existing Regulations).
- Thresholds and processes for reporting sample analysis results in relation to health-based and aesthetic parameters.
- The threshold and process for reporting on HBT performance.

Infringement notices

It is anticipated there will be a need for explanatory material about how and under what circumstances an infringement notice may be issued. The Department confirms that information will be published before any notices are issued.

Explanatory information for the public

The Department acknowledges the importance of providing transparent and accurate information to the public about drinking water quality, to ensure accountability and to

properly inform the public about any risks associated with consumption of water. This is necessary to support Victorians to make informed choices about the water they consume, and to maintain overall public confidence in the quality of drinking water that is supplied in Victoria, and the operational and regulatory safeguards that apply to it.

The proposed updates to the Regulations may increase the instances of non-compliance with the prescribed water quality standards and associated notifications to the Department that are on the public record. While these notifications are intended to improve regulatory oversight, and better target operational and regulatory interventions to address water quality risks, the Department has heard concerns during consultation that published data about these notifications may lead to a public misconception about the quality of the water and unnecessary concern that it is unsafe.

The Department intends to publish explanatory material for the public to inform the public, and to provide a basis for water agencies to frame their public communications in an accurate and comprehensible way.

Monitoring and evaluation

The Department notes that the proposed changes to RMP requirements and to the prescribed standards, together with the proposed related reporting requirements, will improve the regulatory intelligence available to the Health Regulator.

The reports will include quantitative and qualitative data about the quality of drinking water against prescribed standards and HBT performance targets, and about the actions taken by water agencies to address risks and non-compliance that is revealed through their sampling and performance monitoring.

This will inform targeted and risk-based monitoring and enforcement by the Health Regulator. It will also inform analysis of trends in drinking water quality, which is a key indicator of whether the regulatory framework is operating effectively.

The department will evaluate the impact of regulatory requirements and of Health Regulator monitoring and enforcement activities against the stated objectives in this RIS before the regulations expire. It will use data gathered from the expanded drinking water quality standards to assess trends in water quality and make recommendations to the Minister about potential further improvements to the Regulations throughout the regulatory period.

Assumptions

Data/Assumption	Value	Source
Analysis period	10 years	Timeframe until regulations sunset.
Discount rate	4%	Better Regulation Victoria (BRV).
RMP costs per water agency		
Detailing emerging risks (initial)	$30,000 regional, $110,000 metro (excluding Melbourne Water)	Based off estimated desktop research costs from industry survey. Assumed $0.56 per regional customer. Regional water agencies without customer numbers have been converted based off revenue and/or volume of water supplied for RMP costs as appropriate.
Detailing emerging risks (ongoing)	$15,000 regional, $55,000 metro	Calculated at 50% of the costs of initial emerging risk assessment for ongoing monitoring.
Documenting inspection and maintenance	$6,000 initial costs for regional agencies	Costed from survey data for an average sized regional water agency, primarily for reporting existing processes. This is assumed at $0.11 per regional customer. Costs to document are minimal after initial incorporation, halved after initial incorporation and then halved again the following year and ongoing at that cost
Data costs (initial)	$30,000 regional, $33,000 metro	Modelled as same costs as emerging risks as similar effort identified in industry survey averaged for water agency size. Assumed $0.56 per regional customer.
Data costs ongoing	$15,000 regional, $16,500 metro	Calculated at 50% of the costs of initial costs for ongoing reporting (weighted average for water agency size).
CCP evaluation	$320,000	Total nominated costs from survey for regional water agencies that have nominated this as a new cost.
CCP reporting	$6,000 Initial costs for regional agencies	Costed from survey data for an average sized regional water agency, primarily for reporting existing processes. Assumed to be the same as documenting inspection and maintenance costs. Costs to document are minimal after initial incorporation, halved after initial incorporation and then halved again the following year and ongoing at that cost.
HBT cost assumptions		

Aligning with HBT framework	$160,439	Administrative costs to comply taken from industry survey for relevant water agencies required to transition to the ADWG who had no current plan to do so. Estimate based on costs incurred for agencies that have costed the transition scaled for agency size. Total costs over 2 years.
HBT source water categorisation	$111,747	Costs over two years to determine a HBT source water category for all relevant regional water agencies. Costs from industry survey based on total sample analysis costs required.
Substantive HBT compliance costs, assumed to occur over years 5-10 in the model. (preferred option)	$7,171,000	Costed from survey data, scaled for relevant regional water locality sizes. Assumes that all systems under 10^{-5} DALY pppy will improve to the minimum reporting level over the life of the Regulations. Based on survey estimates for total UV plant required to meet HBT minimum reporting threshold.
Substantive HBT compliance costs, assumed to occur over years 5-10 in the model. (non-preferred option)	$5,791,000	Costed from survey data, scaled for relevant regional water localities. Assumes that 80% of systems under 10^{-5} DALY pppy will improve to the minimum reporting level over the life of the Regulations.
Drinking water quality standards		
Aesthetic standards reporting – small report (1-10 exceedances of a standard) - quarterly	$2,500	Costed from survey estimates for a small amount of required reporting. Size of report based off survey information and annual reporting.
Aesthetic standards reporting – medium report (11-50 exceedances of a standard) - quarterly	$3,750	Assumed 50% additional costs for reporting a larger amount of exceedances of a guideline value – likely to involve more parameters than a small report.
Aesthetic standards reporting – large report (51+ exceedances of a standard) - quarterly	$5,000	Assumed double costs of a small sized quarterly report. Likely to involve more locations and more parameters to report on.
Substantive compliance costs for aesthetic standards (preferred option), assumed to occur over years 5-10 in the model.	$5,961,000	10-year NPV based on average treatment costs per 1,000 population impacted x 0.75 to reflect an assumption that in 25% of cases a s19 variation to an aesthetic standard is applied for and approved. Costs derived from reverse osmosis treatment and pH treatment for a small number of regional water suppliers that are outside the acceptable value. Reverse osmosis costs

		per customer estimated based on public costings of reverse osmosis systems. pH costs are based on industry survey responses for average sized water treatment system dosing costs.
Substantive compliance costs for aesthetic standards (non-preferred option), assumed to occur over years 5-10 in the model.	$20,335,000	10-year NPV based on average treatment costs per 1,000 population. Includes costs from preferred option plus additional treatment for a range of additional parameters with regular exceedances of a guideline value, includes TDS, ammonia, manganese and additional pH.
Localities		
Localities current costs	$16,800 regional, $35,000 metro	Total annual costs for all water agencies based on survey responses.
Localities preferred option annual costs	$12,000 regional, $25,000 metro	Total annual costs for all water agencies based on survey responses.
Government costs		
Government Gazette printing costs per page	$91.30	
Average number of pages printed per change	30	Weighted average based on survey responses.
Number of changes per year	6	Based on survey responses.
Break-even and sensitivity analysis		
Exchange rate NZD – AUD August 2017	1.09	Mid-point of the maximum and minimum exchange rate for the month of August 2017 (the date of the Sapere report into the Havelock North incident).
Total inflation	25.1%	CPI indexation September 2017 – December 2024.
Australian minimum wage	$24.10	Australian minimum wage as of 1 July 2024. – Fair Work Ombudsman.
Australian QALY 2024	$245,000	Best Practice Regulation Guidance Note Value of statistical life – The Office of Impact Analysis.
Mild infection conversion of QALY	0.006	Australian Burden of Disease Study 2018 – Australian Institute of Health and Welfare.
Victorian population	7,012,962	Estimated residential population September 2024 – Australian Bureau of Statistics (ABS).
Total regional customers	719,685	ESC water performance dashboard
Persons per household regional Victoria	2.4	Census 2021 - ABS
Regional customers x persons per household	1,727,244	Regional population affected (calculated based on regional customers and average household size – note this is a rough

		approximation which is likely to somewhat overestimate the total population as not all customers will be separate households)

Glossary

1 x 10^{-6} Disability Adjusted Life Years (1 µDALY) per person per year (pppy)	A benchmark used in the Australian Drinking Water Guidelines to assess the microbial safety of drinking water. It represents a health-outcome target for defining microbially safe drinking water. One Disability Adjusted Life Year (DALY) can be understood as the loss of one year of healthy life.
Aesthetic guideline values	Published in the Australian Drinking Water Guidelines, they provide measures of a water quality characteristic that relate to the consumer's perception of acceptability, such as appearance, taste, and odour.
Aesthetic standards	Defined in section 19 of the *Safe Drinking Water Act 2003* as 'water quality standards that are not primarily intended to protect public health'.
Australian Drinking Water Guidelines (ADWG)	Non-mandatory standards managed by the National Health and Medical Research Council for the health and aesthetic quality of drinking water that are designed using the best available scientific evidence. They also provide an authoritative framework for defining safe, good quality water, how it can be achieved and assured.
Biofilms	Layers of microorganisms attached to pipe surfaces that can form in drinking water pipes, impacting water quality by protecting pathogens and reducing disinfection effectiveness.
Catchment	An area of land that collects rainfall and contributes to surface water (streams, rivers, wetlands) or to groundwater.
Catchment-to-consumer	A risk management approach based on the principle that multiple treatment barriers minimise or mitigate identified hazards in raw water and produce water that meets drinking water quality standards.
Chloramination	A water disinfection process that involves adding chloramine – a compound of chlorine and ammonia – to drinking water to provide a longer-lasting residual disinfectant in distribution systems.
Critical Control Points (CCPs)	An activity, procedure or process at which control can be applied, and that is essential to prevent a hazard or reduce it to an acceptable level. They are further

	defined in Box 3 in this paper.
Drinking water	Water that is intended for human consumption or for purposes connected with human consumption, such as preparing food and making ice (excludes pre-packaged bottled water).
Essential Services Commission (ESC)	The economic regulator established by the State Government of Victoria, which regulates Victoria's water corporations through price reviews, codes, guidelines and performance monitoring.
***Escherichia coli* (*E. coli*)**	*A* type of faecal coliform bacteria. The presence of *E. coli* is an indicator of contamination from human or animal waste. Its presence most likely indicates a breach of a water quality treatment barrier or contamination during the distribution of the water. It is used an indicator for the presence of microbial pathogens.
False-positive sample	An investigation concluded that the detection of *E. coli* in a sample is not representative of the drinking water in the relevant water sampling locality. Refer to the meaning of 'false positive' in Schedule 2 of the *Safe Drinking Water Regulations 2015*.
Framework for the Management of Drinking Water Quality (ADWG Framework)	Published in the Australian Drinking Water Guidelines, it provides a 12-element framework for managing drinking water quality, which includes a preventative approach to manage risks across the entire water supply system from catchment to tap, such as system analysis, risk assessment, monitoring, preventative measures and continuous improvement.
Health-based guideline values	Published in the Australian Drinking Water Guidelines, they provide measures of a water quality characteristic that does not result in any significant public health risk of the consumer, with most values based on over a lifetime of consumption.
Health-Based Targets (HBTs)	Provide measurable health, water quality or performance objectives. They are further defined in Box 4 in this paper.
Health Regulator	The main regulatory oversight branch of the Department of Health.

Log_{10} reduction values (LRVs)	A measure used to quantify the reduction of pathogens in water treatment processes. For simplicity, a logarithmic scale (where each step represents a tenfold reduction) is used to describe the values, as the pathogen reduction values can be anywhere in the order of thousands to millions.
National Health and Medical Research Council (NHMRC)	The main statutory authority of the Australian Government responsible for medical research. It is responsible for developing, endorsing and updating the Australian Drinking Water Guidelines.
Natural Resource Management Ministerial Council (NRMMC)	Now disbanded, but consisted of the Australian Commonwealth, state, territory and New Zealand government ministers responsible for primary industries, natural resources, environment and water policy. It played a key role in developing, endorsing and updating the Australian Drinking Water Guidelines.
Nephelometric turbidity units (NTU)	A measure of clarity determined by a nephelometer that emits a light beam through water.
Pathogen	Disease-causing microorganism. Pathogen types include viruses, protozoa and bacteria.
Per Person Per Year (PPPY)	A unit of measurement used to express the frequency or likelihood of a health outcome occurring for an individual over the course of one year.
Per- and polyfluoroalkyl substances (PFAS)	A group of chemicals that have been used since the 1950s in fire-fighting foams. The release of PFAS into the environment is an emerging concern because these chemicals are highly persistent, and can accumulate in animals and people. As a precaution, human exposure to these chemicals should be minimised while the potential effects of these substances on human health continues to be researched.
pH (potential of hydrogen)	A measure of how acidic or alkaline the water is, indicating its hydrogen ion concentration and affecting both water quality and the performance of treatment and distribution systems.
Regulated water	Water that is not intended for drinking but that could reasonably be mistaken for drinking water.
Risk management plan	A plan prepared by water agencies under the *Safe*

(RMP)	*Drinking Water Act 2003* that details how risk is managed in relation to the storage or supply of drinking water and regulated water to the public.
Routine monitoring/sampling	The regular and systematic testing of drinking water samples to assess their quality and ensure compliance with drinking water quality standards.
The Act	*The Safe Drinking Water Act 2003.*
The existing/2015 Regulations	*The Safe Drinking Water Regulations 2015.*
The proposed/2025 Regulations	The proposed *Safe Drinking Water Regulations 2025.* A draft is attached to this Regulatory Impact Statement.
Total Trihalomethanes (TTHMs)	A group of organic compounds formed when chlorine reacts with naturally occurring organic matter in water supplies.
Turbidity	The cloudiness of water caused by the presence of fine, suspended matter.
Water agency	Water storage managers and water suppliers are referred to collectively as water agencies.
Water sampling locality	A geographic area defined by the following criteria: an area supplied with drinking water; a discrete area of similar water quality, inclusive of all customers supplied with drinking water of similar water quality; and able to be described by its boundaries. Water samples are required to be taken and analysed from water sampling localities.
Water Services Association of Australia (WSAA)	The peak body representing Australian and Aotearoa New Zealand water utilities.
Water storage manager	The Melbourne Water Corporation constituted under the *Water Act 1989* or a water corporation within the meaning of the Water Act (other than Melbourne Water Corporation constituted under the Water Act) that supplies water to a water supplier; or any other person or body declared by the Regulations to be a storage manager for the purposes of the *Safe Drinking Water Act 2003.*

Water supplier	A supplier of drinking water or regulated water to the public; the holder of a water licence issued in Part 2 Division 1 of the *Water Industry Act 1994;* an authority within the meaning of the *Water Act 1989;* Parks Victoria established under the *Parks Victoria Act 1998;* an alpine resort managed under Alpine Resorts Victoria in accordance with the *Alpine Resorts (Management) Act 1997;* or any other person or body declared by the Regulations to be a water supplier for the purposes of the *Safe Drinking Water Act 2003.*

Appendix 1

Figure 2: Water suppliers

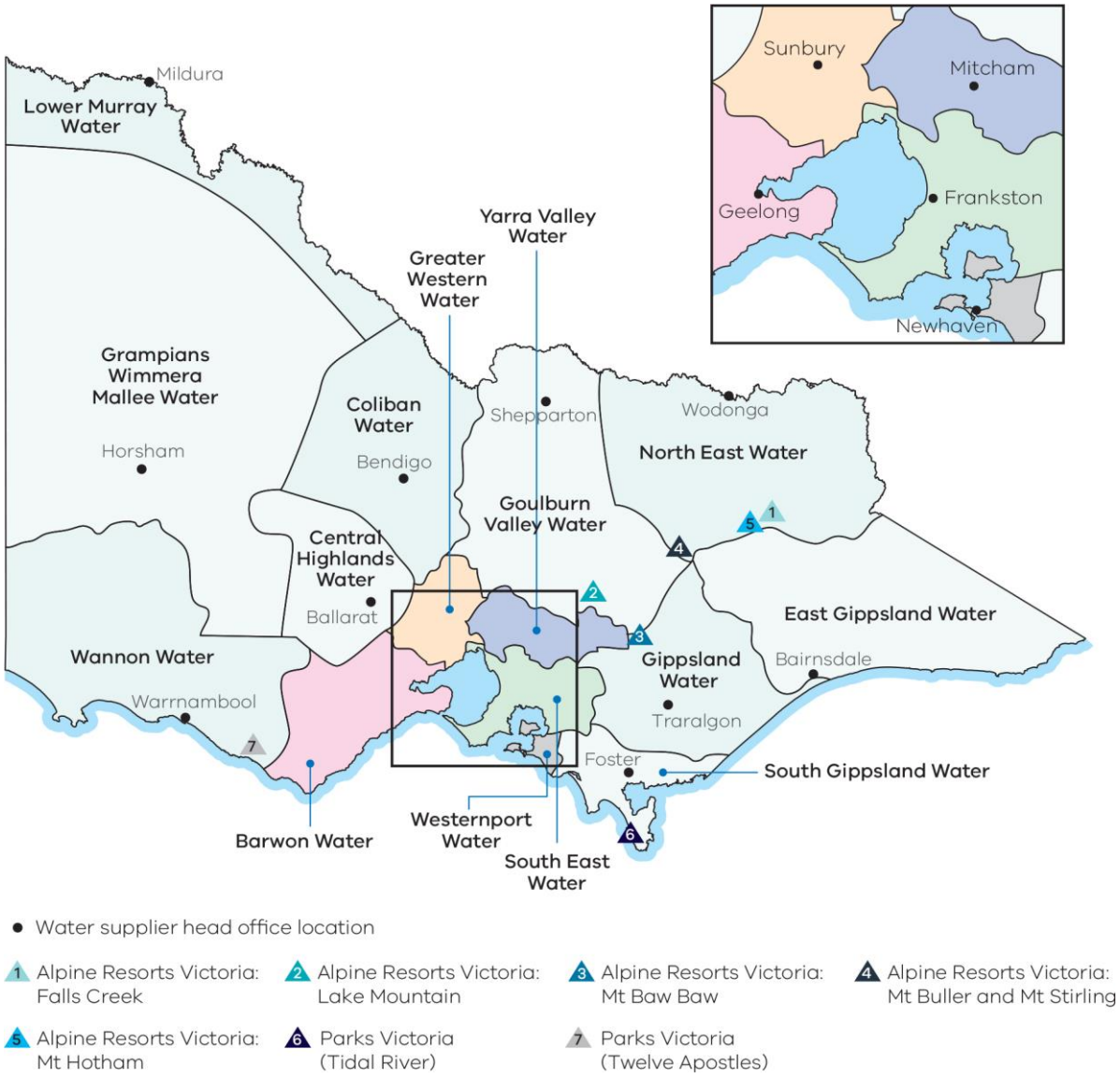


Figure 3: Water storage managers

• Water storage manager head office location

* Grampians Wimmera Mallee Water is both a water supplier and water storage manager

Appendix 2 – The Proposed Regulations - ‘at a glance’

	What is proposed to change?	Why the change?	How would the change be implemented?
Risk Management Plans	In the proposed Regulations see Regulation 6. Expanded: requirement to document critical control points across the system, not just in treatment processes. The definition of critical control point is not substantively amended. New: requirements to include in risk management plan - processes for assessing emerging or potential risks - processes for inspecting and maintaining storage, treatment and distribution assets - processes for review of data on water quality - an improvement plan - a commitment to drinking water quality endorsed by the governing body of agency - Microbial Health Based Target content (see below). Removed: requirement to detail in the risk management plan how the supplier’s water sampling program ensures no consecutive samples. Other current RMP requirements to continue.	These changes aim to further align the Regulations with best-practice risk management approaches in the ADWG, to support sector-wide improvements in risk management to ensure more consistent operational practices in meeting minimum risk management requirements. They are also expected to streamline and strengthen regulatory oversight, enabling targeted auditing, clearer reporting on compliance and greater visibility for the Health Regulator of potential risk to public health and non-compliance with RMP requirements. The change in relation to CCPs is not intended to substantively alter the definition of what constitutes a CCP or drive the creation of new CCPs where they are not appropriate. Rather it is intended to ensure that CCPs, where they are appropriate and required, are documented across the supply system and not just in relation to treatment.	The Department notes that guidance may be required to assist water agencies in understanding and applying new requirements. This may include supporting guidance relevant to risk management plan audits to promote consistent interpretation of compliance and improvement expectations. While the Department is considering the development of guidance across all proposed changes to the risk management plan requirements, it is recognised that guidance relevant to health-based targets should be prioritised, along with critical control points, assessing emerging risks, inspection and maintenance programs, review of data and the improvement plan. The Department notes feedback received through the review of the Regulations that many agencies already have relevant risk management processes in place, in particular in relation to commitments to drinking water quality, improvement plans and data review. The Department also understands that some agencies have already considered and established CCPs outside their treatment systems that would have to be documented under the new requirements.

	What is proposed to change?	Why the change?	How would the change be implemented?
Water quality standards – health	In the proposed Regulations see Regulation 16(1) and (2) for prescribed standards and Regulations 17 and 18 for required frequency of sampling. Retained: current standards for *E. coli* and TTHMs including sampling frequency, but removing current allowance for 'false positives' for *E. Coli*. New standards: for all health-based parameters in ADWG Table 10.6, corresponding guideline value must not be exceeded. Standards will incorporate any updates to Table 10.6 that are made from time to time over the life of the Regulations. Retained: General standard requiring water be free of substances at levels that may pose a risk to human health.	No changes are proposed to currently prescribed standards – *E. coli* and TTHMs – that remain effective key indicators of microbial and chemical risks. However, the current 'false positive' exception for *E. coli* is removed because the current provisions are not driving the intended operational improvements in reducing occurrences of false positives. The proposal to link health-based standards in the 2025 Regulations to the relevant health-guideline values in the ADWG provides clear measures of compliance relevant to the safety of drinking water supplies. It also allows for the establishment of drinking water quality standards that reflect the latest scientific understanding of risks to public health in an Australian context.	The Department recognises that using the ADWG as the authoritative reference for establishing the safety of drinking water supplies – and for demonstrating compliance with the general health standard – aligns with current industry practice. As such, this change is not anticipated to have a material impact on the process for notifying the department of non-compliances or the number of non-compliances of health-based standards. The Department also recognises that when changes to ADWG health-based guideline values occur, the implications for water agency compliance should be discussed and understood to ensure agencies receive appropriate regulatory support to achieve compliance with updated standards. The Department anticipates that the changes relevant to removing the *E. coli* false positive exception will also require guidance, particularly as it relates to the Department's expectations on investigating instances *E. coli* detections.

	What is proposed to change?	Why the change?	How would the change be implemented?
Water quality standards – aesthetic	In the proposed Regulations see Regulation 16(1) and (2) and Schedule 2 for the prescribed standard and Regulations 17 and 18 for frequency of sampling. Retained: current standard and sampling frequency for turbidity. For parameters in ADWG Table 10.6 with an aesthetic value (except chlorine), parameter and value will be prescribed. For pH, standard will require testing monthly in each sampling locality and range for compliance will be 6.5 – 9.2. For all other prescribed parameters the standard will be that the guideline value in the ADWG must met as a rolling 12 month average. Frequency of sampling will be per water sampling program or as determined by Secretary. Parameters and values will be fixed in Regulations (i.e. aesthetic standards won't be updated if/as the ADWG are updated).	No changes were proposed to the prescribed turbidity standard as it remains an effective measure of both operational performance and aesthetic drinking water quality. Including pH as a prescribed standard recognises its critical role as both an aesthetic indicator and an operational performance parameter. It is proposed that the prescribed pH aesthetic standard has a different range to the ADWG (which lists 6.5 – 8.5) to accommodate challenges in maintaining pH in chloraminated systems and in systems utilising new concrete tanks and cement-mortar lined pipes, which can significantly increase pH. Including other aesthetic guideline values in the 2025 Regulations is intended to promote greater agency focus on maintaining the aesthetic quality of drinking water and enable improved regulatory oversight of the aesthetic performance of drinking water supplies. Fixing aesthetic standards to aesthetic guideline vales in the ADWG as they currently stand will enable any proposed changes to aesthetic standards to be subject to cost benefit analysis.	The Department notes that changes proposed to introduce more aesthetic standards may lead to an increase in notifications under section 18. This is intended to provide greater visibility of water that does not meet aesthetic standards, including those standards established with the relevant community, to support both water suppliers and the Health Regulator in guiding appropriate corrective action. The Department is intending to publish explanatory material to mitigate the risk that public data about section 18 notifications might be misinterpreted. The Department recognises the need for guidance and support regarding the flexibility mechanism in section 19 of the Act, that can enable a water supplier to apply to the Minister to vary an aesthetic standard, following consultation with the relevant community. It also recognises the need to ensure that consultation regarding these applications can complement consultation already undertaken through Essential Services Commission processes. The Department is also considering updated supporting guidance with regard to section 18 notifications, section 20 exemptions and section 30 enforceable undertakings, as they relate to compliance with drinking water quality standards. As part of this RIS process the department welcomes feedback if additional time may be required for agencies to prepare to comply with the reporting requirements, as this can inform decisions about commencement dates for updated requirements.

	What is proposed to change?	Why the change?	How would the change be implemented?
Water sampling program – frequency and analysis	Sampling program: Specific obligation on water suppliers to determine a program, to include all elements currently required under Regulation 8 (except regarding consecutive samples). All relevant information to be included in RMP as currently required under Regulation 8. In the proposed Regulations see Regulation 13 and Regulation 6(1)(g) and (f). Sampling localities: Renamed sampling areas. No longer proposed by a water supplier to the Secretary then specified in a notice published in the Government Gazette. Instead suppliers must specify water sampling areas, by reference to source water, treatment process and distribution system. Changes made after new Regulations to be reported to Secretary and noted in supplier annual report. Secretary may direct a supplier to change a sampling area if Secretary considers it is not representative of water supplied. If the Secretary believes that drinking water is being supplied that is not covered by a water sampling area they may issue a direction to the supplier to address this. In the proposed Regulations see Regulations 11-13 and 6(1)(b). Frequency: Per standards for *E.coli*, TTHMs, pH and turbidity. For other characteristics, per water sampling program or as determined by Secretary (as under current Regulation 13). In the proposed Regulations see Regulations 17 and 18. Analysis: All samples collected to be analysed by a NATA accredited organisation. In the proposed Regulations see Regulation 19.	Removing the requirement for sampling localities to be gazetted will reduce the cost and administrative burden associated with the gazettal process and provides suppliers with a more efficient means to adjust water sampling localities. The proposed changes to report new localities or changes to existing localities to the Secretary provides regulatory oversight. The power for the Secretary to direct a supplier to change a specified locality provides a mechanism for regulatory intervention to ensure the water in that locality is representative. Annual report requirements maintain public transparency about sampling localities that is currently provided through the gazettal process. To reflect this change the published proposed Regulations include specific requirements for water suppliers to specify water sampling localities and establish a water sampling program. This is necessary as other provisions of the Regulations refer to the localities and the programs (e.g. the RMP and water sampling requirements) so the Regulations must be clear about how those are determined. The factors to be considered to determine the localities and program in the proposed Regulations are the same as under the existing Regulations. Water sampling localities gazetted under the existing Regulations are carried over to apply under the 2025 Regulations. The prescribed frequency for sampling for *E. coli*, TTHMs, pH and turbidity facilitates consistent surveillance across the sector for key drinking water quality standards. Further, setting a frequency for pH allows for the compliance threshold for the standard to be set as an acceptable range for a rolling 12-month average. Requiring samples to be analysed by a NATA accredited organisation (currently, a NATA accredited laboratory) enables NATA accredited methodologies to serve as the compliance threshold for testing of samples including field testing where appropriate.	The requirements for specifying water sampling areas and developing and documenting a water sampling program in the proposed Regulations incorporate the relevant requirements from the existing Regulations. Under the proposed Regulations a water sampling area must be specified by reference to the same factors that must be detailed currently in a proposal for a water sampling locality (those listed in current Regulation 7(1)). Under the proposed Regulations a water sampling program must be developed by reference to the same matters as are currently required to be detailed in the RMP under Regulation 8(1)(d). The Department anticipates a need for updated guidance to support suppliers in the proposed changes to water sampling localities. The Department also anticipates a need for guidance to establish how the changes relating to NATA accreditation impact supplier's obligations regarding drinking water sample analysis.

	What is proposed to change?	Why the change?	How would the change be implemented?
Water sampling – reporting analysis results	In the proposed Regulations see Regulation 20. Suppliers would be required to report results of sample analysis that indicates an exceedance of a prescribed health-based guideline value. The report would include all information currently required under Regulation 15, plus information about steps that the supplier has taken or will take to address contravention/risk to health. The report is to be made within 10 days of exceedance being known. Suppliers would be required to report results of sample analysis that indicates a point in time exceedance of a prescribed aesthetic guideline value, or presence at a level that would result in widespread public complaint, including steps taken or to be taken. Reports on guideline value exceedance would be provided on a quarterly basis and reports on widespread public complaint within 10 days.	The proposed requirements continue current reporting on sample results that indicate water does not meet regulatory standards. This provides essential regulatory oversight. The additional requirement to report on steps that the supplier has taken or will take to address a contravention is intended to improve the Health Regulator's visibility of poor-quality water and corrective actions taken by the supplier. The proposed reporting on prescribed aesthetic values provides the Health Regulator with regulatory intelligence at a greater frequency (quarterly) than would be permitted by reporting against aesthetic standards (as the standards are a rolling annual average). The reporting timeline requirements for results related to widespread public compliant (10 days following the event) is aligned with the current reporting requirement for exceedances of health-based standards, reflecting the potential seriousness of such events.	The Department notes that reporting on sample results is a well-established process under the 2005 and then 2015 Regulations. It is noted that guidance might be required to support agencies to comply with the updated requirements.

	What is proposed to change?	Why the change?	How would the change be implemented?
Health based targets	New requirement - in the proposed Regulations see Regulation 6(4) and (5): An RMP must include processes for incorporating HBT per ADWG, i.e. - Monitoring and assessing levels of enteric pathogens, and assigning and revising source water categories - Assessing treatment needs per source water category, documenting performance to achieve HBT, and designing, testing and validating process to meet treatment targets (log reductions). - Documenting underperformance and improvement plan to address it. New requirement to report to Secretary where agency becomes aware performance not sufficient to meet 10^{-5} DALYs pppy. Report to detail treatment processes applied and actions taken or to be taken to meet 10^{-5} DALYs pppy. In the proposed Regulations see Regulation 20.	This proposed change requires water agencies to align their framework for managing the microbial safety of drinking water supplies with a contemporary framework that adopts the best Australian evidence. Accountability for applying this framework (e.g., agencies managing the source water must characterise the risks) has been designed in a manner that is consistent with the Act. Reporting to the Department at the 10^{-5} DALYs pppy threshold provides a critical indicator for the Department of a level of risk that warrants regulatory oversight.	The Department notes feedback from agencies about the potential impact of this change, including in responses a survey conducted during the review of the Regulations. It is understood that across the sector agencies take various approaches to monitoring and managing microbial risk and some would need to make adjustments to fully align with ADWG in this regard. The proposed Regulations provide a 12-month implementation period for the requirements relating to microbial HBTs before they take effect. As part of this RIS process, the Department welcomes feedback on this proposed implementation timeline to support preparation for compliance with the updated requirements.
Infringement offences	New regulation to prescribe offences for the purposes of section 47A of the Act, being offences for which an infringement notice (fine) can be issued. In the proposed Regulations see Regulation 23 and Schedule 3. This relates to offences against section 12(3), 14, 15, 37(1) and 9 of the Act, and offences against Regulations 17, 19 and 20(1)(2) and (3) of the Regulations.	Infringement notices can allow a targeted, timely and proportionate response to non-compliance. Prescribing offences under the Regulations does not create new offences or penalties. Rather it creates a new mechanism for enforcing the existing penalties, through a fine rather than court proceedings. The infringement penalty is a fraction of the full penalty that can be awarded in court proceedings. The Attorney-General has issued Guidelines under the *Infringements Act* on what offences are suitable to be prescribed as infringement offences and the offences prescribed in the proposed 2025 Regulations meet those Guidelines.	The Department recognises that further information on the process for issuing infringement notices will be sought, and this will be published as part of fully implementing the new infringement notice power.