Christchurch City Council

03 941 8999

53 Hereford Street
Christchurch 8013

PO Box 73016
Christchurch 8154

ccc.govt.nz

1 March 2021

Committee Secretariat
Health Committee
Parliament Buildings
Wellington

he@parliament.govt.nz

CHRISTCHURCH CITY COUNCIL SUBMISSION ON WATER SERVICES BILL

1. Introduction

1.1. Christchurch City Council (the Council) thanks the Health Select Committee for the opportunity to provide comment on the Water Services (the Bill).

1.2. The Council supports the Government's intent to provide for a more robust and comprehensive three waters management regime that began with the enactment of the Taumata Arowai Water Regulator Act 2020 and continues with the Water Services Bill.

1.3. We are fortunate in Christchurch to have high quality groundwater as the drinking water source for the majority of our residents (noting that most of the Banks Peninsula catchments are not supplied by aquifers and are chlorinated). The source water for Christchurch and Lyttelton complies with all maximum acceptable values in the drinking water standards and requires no treatment to remove particulates, pathogens or contaminants.

1.4. We believe that our risk management approach can enable us to provide safe drinking water to our residents and that, for those supplies sourced by groundwater, we can provide safe drinking water without the need for continual and regular residual disinfection.

1.5. Our submission comprises two parts. The first part focuses on three key areas of concern for the Council, which we wish to draw to the attention of the Health Select Committee:

- The focus on a requirement for residual disinfection for any drinking water supplies that include reticulation, rather than a risk-based approach for public health outcomes
- Source water protection and the requirement to treat all source water
- Consequences for territorial authorities.

1.6. The second portion of the submission covers technical matters.

1.7. Our submission aligns in principle with the submissions of Waimakariri and Selwyn District Councils and as such we support the direction of their submissions.

1.8. We note that the Bill does not include any provisions for rationalisation of the current public and private drinking water suppliers, which we understand will be developed later this year.

1.9. The Council wishes to appear in support of this submission. The Council will be represented by the Mayor, supported by a staff member.

1.10. Given its significance to Christchurch, we would ask the Health Select Committee to consider travelling to Christchurch for the hearing of our submission, and any others from Canterbury that may be received by the Committee.

2. Key areas of concern

2.1. We support good public health outcomes for drinking water supplies and taking a risk based approach through developing and implementing drinking water safety plans for water supplies. We have found this approach to be very beneficial for the Council's water supplies. We support the general thrust of the Bill and think that it will improve the safety of drinking water supplies in New Zealand.

2.2. Safe drinking water is vitally important, and the Council remains committed to ensuring that our residents continue to have access to safe drinking water. We support legislation and regulations aimed at providing good public health outcomes, such as a risk-based approach delivered by robust drinking water safety plans.

2.3. We consider that through a risk-based approach, as demonstrated through robust drinking water safety plans and source water risk management plans, we can provide safe drinking water to our residents. For our drinking water supplies sourced from groundwater we have demonstrated that we can achieve this without having to rely on permanent residual disinfection, or physical treatment. We elaborate on this in our submission points below regarding residual disinfection and source water treatment.

Safe drinking water and the requirement for residual disinfection

2.4. The Council's approach to managing our drinking water supplies is one that employs multiple barriers and has an on-going commitment to continuous improvement. Supporting this we undertake stringent monitoring processes that exceed those required in the New Zealand drinking water standards.

2.5. The Council supplies over 99 per cent of our residents with drinking water sourced water sourced from high-quality groundwater. We have a long history of providing demonstrably safe untreated drinking water from this source.

2.6. Section 31(1)(j) of the Bill requires that drinking water safety plans provide for residual disinfection where the drinking water supply includes reticulation unless an exemption is obtained.

2.7. Although there is no definition of 'residual disinfection' in the Bill presumably it refers to maintaining a chlorine residual in the reticulated water.

2.8. We support a risk-based approach to managing drinking water services. The prescriptive requirement for residual disinfection is contrary to a risk-based approach. Further, the evidence demonstrates that unchlorinated supplies with high quality infrastructure and strict hygiene processes (e.g. many supplies in the Netherlands) have disease rates four to five times lower than in the UK and USA where residual chlorination is mandatory (*Non-Chlorination Case Studies Report*, GHD, 2018, see Appendix A for a summary). Residual chlorination can lead to complacency on the part of the water supplier and its operations and maintenance staff and contractors.

2.9. The requirement for residual disinfection is of particular significance in the Canterbury region where a number of reticulated drinking water supplies operate without chlorination. Unchlorinated water was delivered to residents and businesses in Christchurch for many years without any outbreaks of disease.

2.10. The Council has always used chlorine as a targeted measure when required to reduce the risk of microbial contamination e.g. where there are poor condition reservoirs, inadequate backflow prevention and following pipe repairs. We also used temporary chlorination after the 2011 earthquakes for a period of around seven months. However, the requirement of the Bill for residual chlorination in all supplies, unless an exemption is obtained, is not supported by the health evidence.

2.11. In addition, for very small supplies the risks involved with the application and handling of chlorine may outweigh any benefits that chlorine may provide. If it is not intended that very small supplies are chlorinated, this should be clearly defined.

2.12. Section 57 of the Bill provides for an exemption to residual disinfection. Section 57 (4) states that Taumata Arowai may grant an exemption from the requirement to use residual disinfection "on any conditions that Taumata Arowai thinks fit".

2.13. The wording of the Bill creates uncertainty over whether there will be transitional arrangements for any owners/operators of unchlorinated drinking water supplies subject to Section 31(1)(j) who may wish to apply for an exemption. For many such drinking water suppliers a requirement to chlorinate at short notice would be expensive and/or impractical or impossible to achieve. It is unclear whether a drinking water supplier of a supply without residual disinfection would be able to apply for an exemption, or whether the supply would first have to have residual disinfection before an exemption could be sought, given the current wording of Sections 31 and 57. In the case of Christchurch, it would cost around $25 million to install permanent chlorination equipment (*Permanent Treatment of Christchurch Water Supply*, WSP, 2019, see Appendix B for a summary), which would then be redundant if an exemption was obtained.

2.14. Also, this uncertainty makes it difficult for drinking water suppliers to engage with those they supply and to plan operationally for changes that may be required as a result of the Bill being enacted and enforced.

2.15. Under Section 57(3)(b), where a drinking water safety plan "does not provide for the use of residual disinfection" the drinking water supplier must demonstrate that its drinking water safety plan "will comply with legislative requirements and the drinking water safety plan on an ongoing basis". Under Section 31 a drinking water safety plan must include a multi-barrier approach, where a multi-barrier approach is defined as having physical removal of pathogens and disinfection of the water.

2.16. The Council supports a provision for exemptions to residual disinfection, but considers that improvements are needed to the Bill to clarify requirements for suppliers whose drinking water supplies do not already include residual disinfection.

2.17. The Council has been working to remove the temporary chlorination it was required to introduce to its drinking water supply in January 2018. Since then the Council has been progressively upgrading the supply system, in particular by securing the quality of water extracted from underground aquifers before it is distributed across the city.

2.18. As a result of this work it is likely the Council will seek an exemption from the requirement that its Water Safety Plan provides for the use of residual disinfection in its supply.

2.19. Given the importance of this issue to the Council, and the fact the regulator's exercise of its powers in section 57 is largely unscripted, the Council is concerned to ensure there is a robust process put in place to deal with applications of this nature. As it stands, the only redress for an unsuccessful applicant is to seek an internal review of a decision to refuse to grant an exemption (section 88(2)(c)). The application for review must be made in the manner and form required by Taumata Arowai, as provided in section 88(2)(d)).

2.20. The only part of the process prescribed in section 88 is the ability for Taumata Arowai to stay the operation of a decision while the internal review is undertaken. The next step for an applicant, whether its application was granted or refused, is an appeal to the District Court to confirm, vary or set aside the decision (as per section 92). There are subsequent appeal rights to the High Court and to either the Court of Appeal or the Supreme Court, but on a question of law only.

2.21. The Council's concern is that the only opportunity available to an applicant to seek redress in respect of an internal review is to go through the court system. The Council believes this is unfair and suggests that if Taumata Arowai is to be given the authority to judge its own decisions then, to ensure some accountability, an independent review process should be established.

2.22. The Council draws the Health Select Committee's attention to Taumata Arowai – the Water Services Act 2020. Section 20(1) of that Act enables Taumata Arowai to establish one or more technical advisory groups to provide independent advice to it on any matters relating to the regulator's objectives or the performance or exercise of its functions, duties or powers. A technical advisory group may determine its own procedures (section .20(5) of the Act) and Taumata Arowai must have regard to the advice it receives (section 20(6) of the Act).

2.23. The Council encourages the Health Select Committee to take an 'enabling' approach to this issue and to seek appropriate advice from officials on whether or not new or existing legislation could be used or adapted to provide an independent review of decisions made by Taumata Arowai before an applicant is forced to embark on a costly and time-consuming process in the courts.

2.24. The Council recommends that:

2.24.1. The links between sections 57 and 31 and their definitions should be reviewed to ensure that they are compatible with each other. In particular, if the Bill intends to allow for water without residual disinfection to be provided, and if this is to be demonstrated via a drinking water safety plan, then the requirements in a drinking water safety plan should also allow for water without residual disinfection. If this is not addressed the allowance for an exemption becomes meaningless, if the drinking water safety plan criteria preclude chlorine free water from being permitted.

2.24.2. Section 57 is amended to allow water suppliers to apply for an exemption from providing residual disinfection, and that only if that exemption is declined and a reasonable time has elapsed to allow for the design and installation of the

necessary equipment should the requirement to provide residual disinfection come into effect.

2.24.3. The Health Select Committee considers recommending the establishment of an independent review authority to review decisions on applications for exemption made by Taumata Arowai.

Source water protection and the requirement to treat all source water

2.25. Section 31(2) of the Bill states that a multi-barrier approach must be used to implement the drinking water safety plan, which includes the requirement that a drinking water supplier must 'remove particles, pathogens, chemical and radiological hazards from the water by physical treatment'.

2.26. There are many ways to achieve multiple barriers to safe drinking water without removing particles, pathogens and chemical and radiological hazards by physical treatment. It is unlikely there would be any drinking water supply in the country that removes radiological hazards by physical treatment, but rather drinking water sources are selected and managed to ensure radiological hazards are not present.

2.27. There may be barriers preventing contaminants entering the source water without the need for physical removal of particles, chemicals or radiological hazards. For example, confined aquifers with good source protection prevent contaminants entering water, and the aquifers naturally remove particles, pathogens and other contaminants by filtration and absorption.

2.28. In the case of Christchurch, the groundwater used to supply the city consistently complies with all of the maximum acceptable values in the drinking water standards without the need for treatment. Water is taken from 138 wells ranging from 30 to 220 metres deep at 50 pump stations across the city. It would be prohibitively expensive, and in some cases physically impractical, to install a physical treatment plant at every pump station. As the source water already meets the drinking water standards, the treatment plants would provide no additional benefit, at great cost to the city.

2.29. Section 31(2)(c) requires disinfection of all source water to kill or inactivate pathogens. However, aquifers with groundwater that is at least one year old do not contain pathogens. In the case of Christchurch, a groundwater age determination programme is underway using a combination of age testing and groundwater modelling. Results so far indicate that all but one operational well has water that is at least 12 years old and in most cases the minimum groundwater age is over 50 years. Installing UV treatment at every pump station would cost $75 million plus $3 million per year to operate and maintain that equipment (Permanent Treatment of Christchurch Water Supply, WSP, 2019, see Appendix B for a copy). Again, this would be a very large expense for the city with no benefit.

2.30. The focus should instead be on taking a risk based approach, where the findings of the source water risk management plan prepared under section 42 are used to determine whether treatment of source water is required.

2.31. The Council recommends that Section 31(2) is rewritten as follows [underlined text are additions, strikeout text are deletions]:

> *A multi-barrier approach to drinking water safety is one that Taumata Arowai considers will –*

(a) prevent hazards from entering the raw water; and

(b) <u>if required to achieve compliance with maximum acceptable values in the drinking water standards,</u> remove particles, pathogens, and chemical and radiological hazards from the water ~~by physical treatment~~; and

(c) if required to achieve compliance with maximum acceptable values in the drinking water standards, kill or inactivate pathogens in the water by disinfection; and

(d) maintain the quality of water in the reticulation system.

2.32. The Council recognises the importance of drinking water source protection and managing risks to source water quality. With that in mind the Council notes that while there are provisions in the Bill for source water risk management plans more could be done to support protection of the quality of drinking water sources.

2.33. The inclusion of Te Mana o Te Wai in the Bill, and the obligations associated with it, may aid in supporting protection of the quality of drinking water sources but we consider that there remain gaps, particularly with regard to groundwater sources. Regulatory instruments such as the National Policy Statement for Freshwater Management and the National Environmental Standard for Sources of Human Drinking Water (Drinking Water NES) could go further to protect drinking water sources from contamination.

2.34. We encourage the Government to undertake the amendments of the Drinking Water NES signalled in the 2019 discussion document *Action for Healthy Ways,* in particular "a new approach for managing specific contaminants in source waters, including nitrate-nitrogen". We also encourage the Government to undertake further work on the public health risks posed by nitrates in drinking water.

<u>Consequences for territorial authorities</u>

2.35. Sections 197 through 201 of the Bill amends the Local Government Act 2002 (LGA 2002) to replace subpart 1 of Part 7. These amendments to LGA 2002 would require territorial authorities to:

- Assess all drinking water supplies other than self-supplies within their districts.
- Work with a drinking water supplier, consumers of the supply and Taumata Arowai to find a solution if a drinking water service fails or appears to be failing.
- Take over the management and operations of a failing drinking water service, or provide water via alternative arrangements.

2.36. These provisions of the Bill go well beyond territorial authorities' current responsibilities under LGA 2002, particularly the requirement to take over water supplies that fail to meet their statutory obligations or pose a risk to public health.

2.37. Complying with the drinking water standards and the requirements of the Bill could be quite onerous for very small private supplies (see further comments on this in paragraphs 3..76 through 3.82), and it is likely that many of them will be found to face significant problems. The cost of taking over these small supplies and bringing them up to the standard required to achieve statutory compliance could be very expensive on a per capita basis, as they do not have the economies of scale of larger supplies.

2.38. We note that the Bill does not appear to anticipate future delivery service models for three waters services in which territorial authorities may no longer be responsible for supply in a future service delivery scheme. As such the appropriate and relevant body to

work with drinking water suppliers who fail to provide drinking water services may be the primary drinking water entity for the region, rather than the territorial authority.

2.39. The Council recommends that:

2.39.1. The Bill is amended so that the requirements of section 198 apply to a water services entity rather than the territorial authority, for those services it provides, if one has been formed as a result of the Government's Three Waters Reform.

2.39.2. Funding is provided by Taumata Arowai to territorial authorities and water services entities to enable them to bring private supplies up to the standard required to achieve statutory compliance.

3. Technical matters

3.1. In this portion of our submission we note more technical matters for consideration by the Health Select Committee.

Section 3 - Purpose

3.2. The purpose of the Bill is focused almost entirely on drinking water despite there being obligations within the Bill regarding wastewater and stormwater services. Only in Section 3(e) is there mention of "wider water services".

3.3. The Council recommends that the Bill should make its purpose clear not only with respect to drinking water services but also wastewater and stormwater services.

Section 5 - Interpretation

3.4. Officer

3.4.1. It is not clear if the definitions of 'officer' cover a private individual providing drinking water to their neighbour e.g. through a shared well. In these instances, this may be the sole person responsible for operating the water supply, but these instances do not seem to fit any of the definitions provided.

3.4.2. The Council recommends clarifying whether 'officer' includes a private individual providing drinking water to their neighbour.

3.5. Residual disinfection and Disinfection

3.5.1. Definitions are not provided for 'residual disinfection' or 'disinfection'. The term 'residual disinfection' is used in Section 31(1)(j) whereas in Section 31(2) the term 'disinfection' is used. This implies a distinction between the two terms. Presumably 'residual disinfection' refers to maintaining a chlorine residual in the reticulated water, and presumably 'disinfection' refers to killing or inactivation of pathogens in source water e.g. using UV, ozone or chlorine.

3.5.2. The Council recommends that definitions for 'residual disinfection' or 'disinfection' are included in Section 5 in order to remove any uncertainty over the meaning of these two terms.

Section 7 – Meaning of safe in relation to drinking water

3.6. Under Section 7(1) in order for drinking water to be deemed 'safe' the drinking water must be deemed 'unlikely' to cause serious risk of death injury or illness. This definition

seems to contain a mixture of terms relating to risk and likelihood, which could lead to confusion. Risk is typically considered to be the combination of the likelihood of a hazard occurring and the consequence if it did occur.

3.7. Section 7(3)(c) is awkwardly worded. 'Serious risk to public health' is defined in section 58(2) and that definition could be incorporated here.

3.8. The Council recommends that the wording in sections 7(1) and 7(3)(c) is improved.

Section 9 – Meaning of drinking water supply

3.9. Section 9(1)(b)(ii) states that any end-point treatment devices is part of a drinking water supply.

3.10. Typically end-point treatment devices would be installed where the water enters the household or under the kitchen bench, whereas the point of supply is typically at the property boundary or toby. Many end-point treatment devices have been installed by property owners e.g. water filters to remove chlorine. It seems unreasonable to expect the water supplier to take responsibility for end-point treatment devices it did not install and has no control over.

3.11. The Council recommends that end-point treatment devices are only considered part of the drinking water supply when they have been installed by, or required to be installed by, the water supplier.

3.12. Section 9(1)(b)(iii) states that any backflow prevention device is part of a drinking water supply.

3.13. Some backflow prevention devices are within buildings in order to satisfy Building Act requirements, and checked annually as part of a Building Warrant of Fitness. Other backflow devices are located at the boundary to protect the water supply for compliance with the Health Act, and in the future for compliance with the Water Services Act. These boundary devices may be privately owned, or may be owned by the drinking water supplier, depending on whether they are located on the public or private side of the property boundary.

3.14. The Council recommends that backflow prevention devices are only considered part of the drinking water supply if they are installed on the public side of the point of supply.

3.15. The Council recommends that the definition in Section 9(1)(b) is amended to read [suggested additions are underlined]:

> *includes –*
>
> *(i) the point of supply; and*
>
> *(ii) any end-point treatment device installed by the water supplier, or required to be installed by the water supplier*
>
> *(iii) any backflow prevention device <u>on the public side of the point of supply</u>; but*

Section 12 – Meaning of owner

3.16. There are a number of complex scenarios in which a source may be owned by one party, and a treatment plant, distribution system, or part of a distribution system, may be owned by another party.

3.17. The Council recommends that the meaning of 'owner' should give consideration to the fact that a drinking water supply may have different owners for different components.

Section 13 – Meaning of Point of Supply

3.18. The definition of 'point of supply' in Section 13(a) includes the term 'toby', which is a colloquial term derived from slang.

3.19. The Council recommends that 'toby' is defined and that the definition of 'toby' in Section 69G of the Health Act 1956 is transferred to the Bill.

Section 22 – Duty to comply with the Drinking Water Standards

3.20. There does not appear to be any transitionary arrangements with regard to achieving full compliance with the current or any future revisions of the drinking water standards, with the assumption therefore being that compliance must be achieved from the first day in which the Bill is enacted.

3.21. This appears to be a challenging expectation, particularly considering that a number of drinking water suppliers covered by the Bill have not been covered by the current standards, let alone a future revision of which only exposure drafts have been released.

3.22. The Council recommends that:

3.22.1. Consideration should be given to transitionary arrangements with regard to the lead-in timeframe for drinking water suppliers to fully comply with standards that have not yet been released.

3.22.2. Under Schedule 1 Part 1 Section 3 provisions for lead in time to comply with current and future revisions of the standards are given.

3.23. Section 22(2)(f) requires that a drinking water supplier must "take all practicable steps" to notify Taumata Arowai and consumers of the supply when the drinking water does not comply with the drinking water standards. There may be cases where non-compliance with the drinking-water standards may be short term and of minor consequence in terms of safety and would not necessarily need to be notified to consumers. As an example, a sample for a parameter such as pH may have been taken on the incorrect date meaning that the sampling requirements of the standards may not have been met, or a guideline value for an aesthetic parameter may have been exceeded. While it is important the standards are followed with regard to sampling, this level of non-compliance may not warrant widespread informing of the public.

3.24. We note that the exposure draft of the drinking water standards by Taumata Arowai only includes maximum acceptable values and guideline values, and that treatment and monitoring requirements are included in the exposure draft of the operational rules. If the drinking water standards were adopted as proposed, this would go some way to addressing our concerns. However, the example of exceeding a guideline value would still require the water supplier to take all practicable steps to advise affected consumers.

3.25. The Council recommends that Section 22 is amended to only apply to exceedances of the maximum acceptable values in the drinking water standards.

Section 24 Duty to take reasonable steps to supply aesthetically acceptable drinking water

3.26. It is unclear what 'reasonably practicable steps' may entail. In some cases, costs may be very significant to achieve aesthetically acceptable drinking water, where there is not otherwise a risk to public health.

3.27. The Council considers that the term 'reasonably practical steps' should be clearly defined. We recommend that the wording from Section 69H of the Health Act 1956 be transferred to the Bill but amended to use the terminology 'reasonably practicable steps' in place of 'practicable steps'. This would allow the severity of harm from the aesthetic non-compliance to be weighed up against the cost of achieving it.

Section 25 – Duty to provide sufficient quantity of drinking water

3.28. Section 25(2) defines 'sufficient quantity' as "that sufficient to support the ordinary needs of consumers". This provides little certainty as the quantity needed is a subjective matter.

3.29. The Council recommends that 'sufficient quantity' is defined in a less subjective manner. For example according to the World Health Organisation between 50 and 200 litres of water per person per day are needed to ensure that most basic needs are met and few health concerns arise[1].

3.30. Section 25(4) requires that "planned restriction or interruption of supply" must not exceed 8 hours. The Council considers that the inclusion of 'restriction' in Section 25(4) places undue restraint on the ability to impose water use limitations (commonly referred to as restrictions) during times of water scarcity, which is routinely employed as part of water demand management. In addition, the Council provides a restricted water supply to some small settlements and rural areas on a permanent basis. As such restrictions in this sense should not be subject to the criteria currently written into the Bill.

3.31. The Council recommends that:

3.31.1. 'Restriction' is deleted from Section 25(4) or that water use restrictions for demand management are otherwise permitted in Section 25(4).

3.31.2. Consideration is given to how to address the duty to provide sufficient water (Section 25 of the Bill) when there is the potential for it to conflict with Te Mana o Te Wai (Section 14 of the Bill), for example a drinking water supply sourced from small streams with flow levels influenced by weather and any consent conditions to take water from those streams.

Section 26 - Duties where sufficient quantity of drinking water at imminent risk

3.32. Section 26(1)(a) requires that Fire and Emergency New Zealand is notified where the quantity of drinking water is at imminent risk.

3.33. The Council recommends that this requirement should only apply in gazetted fire-fighting areas, as fire-fighting provisions are not required to be provided by all drinking water supplies, particularly small rural supplies where there is insufficient capacity from the public supply.

Section 27 – Duty to protect against risk of backflow

[1] WHO. Guidelines for Drinking-water Quality: fourth edition incorporating the first addendum. Geneva, World Health Organization, 2017 (page 84) https://www.who.int/publications/i/item/9789241549950

3.34. Section 27(2)(b), which allows the drinking water supplier to require a property owner to install a backflow prevention device, is supported. The Council considers that this section will assist in achieving compliance with backflow criteria. Under the Health Act 1956 there are challenges with managing risk of backflow, where a supplier can install a device on the public side of the point of supply, but cannot require a property owner to install a device on the private side. In some cases it is impractical to install a backflow prevention device on the public side of the point of supply. This section appears to address this issue, and is supported by the Council.

3.35. However, section 27 does not include the current requirement of Clause 69ZZZ(4) of the Health Act to test each backflow prevention device in its network each year, and the provision to require the property owner to pay for the cost of the test. It is important that backflow prevention devices are tested annually by an appropriately qualified person, to ensure that they are functioning as intended to prevent contamination of the water supply.

3.36. The Council recommends that the requirement of Clause 69ZZZ(4) of the Health Act to test each backflow prevention device in its network each year, and the provision to require the property owner to pay for the cost of the test, are added to the Water Services Bill.

<u>Section 30 – Owner must have a drinking water safety plan</u>

3.37. Section 30(1) requires that all owners of drinking water supplies must prepare drinking water safety plans.

3.38. The current New Zealand Drinking-Water Safety Plan Framework and Handbook for Preparing a Water Safety Plan do not appear to be fit for purpose for small suppliers to follow, taking into account the need for their requirements to be proportional to scale, complexity and risks as per Section 31(1)(a).

3.39. The Council recommends that consideration is given as to how drinking water safety plan requirements will practically be met both by small suppliers, and also by Taumata Arowai in reviewing small suppliers' drinking water safety plans, given the level of detail and effort required under the current Framework. Consideration could be given to a section under Transitionary Arrangements to introduce a requirement for Taumata Arowai to create a fit for purpose drinking water safety plan template for small supplies well in advance of the timeframe by which a drinking water safety plan is required to be submitted.

3.40. Section 69ZB of the Health Act requires water safety plans to be updated every five years. While section 32(2)(d) requires Taumata Arowai to check that the drinking water supplier has ongoing review arrangements in place, there is a risk that drinking water safety plans may not be updated sufficiently frequently.

3.41. The Council recommends that section 30 is expanded to include a requirement for all drinking water safety plans to be updated at least every five years.

<u>Section 42 – Source water risk management plans</u>

3.42. Section 42(2)(d) requires that source water risk management plans have regard to values identified by local authorities under the National Policy Statement for Freshwater Management that relate to the drinking water source. Also relevant to drinking water

source protection is the National Environmental Statement for Sources of Human Drinking Water.

3.43. The Council recommends that the National Environmental Statement for Sources of Human Drinking Water is added to Section 42(2).

Section 43 – Suppliers to monitor source water quality

3.44. Section 43 requires that drinking water suppliers must monitor the quality of the sources of their drinking water supplies. Regional councils also have a responsibility to monitor water quality (e.g. section 35(2) of the Resource Management Act 1991 requires regional councils to monitor the state of the environment).

3.45. The Council recommends that Section 43 links to requirements under other legislation and regulation requiring regional councils to monitor water quality of drinking water sources.

Section 45 – Regional councils to publish information about source water

3.46. Drinking water source information can be generated and/or held by parties in addition to regional councils. For example Christchurch City Council operates a robust drinking water sampling programme, with the data shared with Environment Canterbury.

3.47. The Council recommends that the Bill is amended to reflect that assessments of the effectiveness of regulatory and non-regulatory interventions by regional councils should also be done in conjunction with drinking water suppliers rather than in isolation.

Section 51 –Templates and models

3.48. Given the potential challenges with the preparation and review of drinking water safety plans for small suppliers, the need for simple templates proportional to the supply size is a necessity, and should be given priority by Taumata Arowai.

3.49. The Council recommends adding a subsection to require preparation of templates and models by Taumata Arowai for small drinking water supplies well in advance of compliance deadlines for affected drinking water supplies.

Section 55 – Duty to renew annual registration and notify changes

3.50. Section 55(1) requires registered drinking water suppliers to apply for renewal of registration annually. This is not required by the Health Act 1956 and seems to be an unnecessary requirement. Instead it would be more efficient to require registered drinking water supplies to confirm any details regarding any changes to the supply (i.e. changes to size, ownership, etc.) when they occur.

3.51. The Council recommends amending Section 55(1) to only require registered drinking water suppliers to immediately advise Taumata Arowai of any changes to their registration details.

Section 61 – Special powers of Taumata Arowai during drinking water emergency

3.52. Section 61(2)(f) and (g) allows Taumata Arowai to direct territorial authorities to supply drinking water in an emergency. Given that territorial authorities may not be drinking water suppliers following the Three Waters Reform, the Council considers that it is inappropriate to refer to territorial authorities in this section.

3.53. The Council recommends that 'drinking water supplier' replaces 'territorial authority' in Section 61(2)(f) and (g). It is a drinking water supplier (whether a territorial authority or other entity) that would be best placed to fulfil these requirements.

Section 72- Duty to use accredited laboratory to analyse water

3.54. This section requires that drinking water suppliers use accredited laboratories to analyse source water, raw water and drinking water for any monitoring requirements. However, this wording precludes using other generally accepted methods such as handheld analysers or online analysers. For example, calibrated online analysers are used to measure turbidity for UV treatment units.

3.55. The Council supports a requirement for use of accredited laboratories for most parameters but would like the wording expanded to include calibrated online and handheld instruments that have been checked using a secondary standard.

3.56. The Council recommends that Section 72(1) is amended to read:

> *A drinking water supplier must use an accredited laboratory, or a calibrated online or handheld analyser checked with a suitable standard, to analyse source water, raw water, and drinking water as part of any monitoring requirements in compliance rules or a drinking water safety plan.*

Sections 77 and 78 – Criteria for accreditation and Application for accreditation

3.57. These two sections are concerned with the accreditation of laboratories that analyse source water, raw water and drinking water.

3.58. Currently International Accreditation New Zealand (IANZ) has a drinking water testing laboratory accreditation programme, operated for the Ministry of Health.

3.59. It is unclear whether sections 77 and 78 are intended to create a new laboratory accreditation scheme or if the IANZ scheme is retained but operated on behalf of Taumata Arowai rather than Ministry of Health. If the former, it is unclear whether IANZ accredited laboratories would be required to undertake additional separate accreditation process for water.

3.60. The Council recommends that Sections 77 and 78 are amended so that it is clear whether laboratories currently accredited under the IANZ programme will be required to undertake a separate accreditation process for water testing, or if their current IANZ accreditation will carry forward once the Bill is enacted, without the need for an additional accreditation from some other accrediting body.

Section 81 – Register of accredited laboratories

3.61. Laboratories may be accredited to perform some analytical tests for water but not others. It is critical that drinking water suppliers use laboratories that are registered for the analytical tests needed.

3.62. The Council recommends that the register of accredited laboratories should include what analyses and parameters the laboratories are accredited to perform.

Section 139 – Network registers

3.63. This section requires Taumata Arowai to establish and maintain a register for wastewater networks and a register for stormwater networks. The section does not indicate any limit

to the type, size, ownership or other factor for either wastewater or stormwater networks. For example, there are a number of houses that may have a shared driveway, and shared stormwater or sewer laterals. It is assumed these are not intended to be included in the requirements for Section 139, but there needs to be a scale at which a group of houses connected does become a network. It is also unclear whether a stormwater network is a considered to be a network of stormwater pipes and/or drains or whether retention basins and similar are intended to be included.

3.64. The Council recommends that definitions of wastewater network and stormwater network are clarified as to what constitutes a wastewater and stormwater network in terms of size and scale.

Offence to contaminate raw water or pollute a water supply

3.65. Section 69ZZO of the Health Act 1956 makes it an offence if a person knowingly or recklessly does any act that is likely to contaminate any raw water or pollute any drinking water. There is no such offence in the Water Services Bill. It is very important that water sources and water supplies are protected from deliberate or reckless behaviour which could contaminate them.

3.66. The Council recommends adding the offence of contaminating raw water or polluting a water supply in section 69ZZ of the Health Act to the Bill.

Non-potable reuse

3.67. Warmer, drier weather due to climate change will increase the demand for water at the same time as diminishing the availability of source water. The National Policy Statement (NPS) for Freshwater Management 2020 sets out a hierarchy of obligations in Te Mana o Te Wai that prioritises first the health and well-being of water bodies and freshwater ecosystems over the use of water for drinking water and other uses. We need to look for other sources of water in areas where water sources are vulnerable to climate change and where it may be difficult to obtain sufficient fresh water from local sources.

3.68. A good example of this is Akaroa, which primarily uses four small streams for its water supply, and water restrictions are imposed every summer to ensure that enough water is left in the streams to meet the consent limits. However, the consents only require that 1 litre per second is left in the stream and it is highly unlikely that such consents would be granted in the future taking into account the hierarchy of obligations in the NPS Freshwater Management. While two bores are also used to supply water to the town, the aquifers are small and can only supply water for short periods. Other bores have been drilled but none are sufficiently productive.

3.69. The New Zealand Coastal Policy Statement 2010 (NSCPS) says that discharges of treated wastewater to the coast should not be allowed unless there has been adequate consideration of alternatives and informed by an understanding of tangata whenua values and their effects on them. As wastewater discharge consents come up for renewal, the combined effect of the NPS Freshwater Management and the NZCPS will be to avoid discharging wastewater to freshwater or coastal water, and instead discharge the treated wastewater to land.

3.70. The Council has decided to replace the Akaroa wastewater treatment plant with a membrane filtration plant and to use this reclaimed water to irrigate new areas of native trees, and to irrigate public parks and flush public toilets. There was strong support from

the community for non-potable reuse of the treated water on private properties for flushing toilets and watering gardens, due to the summer water shortages and a desire to make use of this valuable resource. However, the Canterbury District Health Board and Ministry of Health objected to non-potable reuse due to concerns about possible cross-connections with the drinking water supply and a lack of New Zealand regulations.

3.71. The Council would like Taumata Arowai to develop the necessary regulations to enable non-potable reuse of treated wastewater, in collaboration with other government agencies, water suppliers and tangata whenua. The Council would be happy to assist Taumata Arowai in developing these regulations.

3.72. The Council recommends that the Bill is expanded to include a requirement for Taumata Arowai to develop regulations for non-potable reuse of treated wastewater.

Schedule 1 Transitional, savings and related provisions

3.73. Section 4(3) requires a drinking water supplier to submit a new drinking water safety plan within one year if it serves more than 500 people, regardless of whether an approved drinking water safety plan exists. Councils around the country have put in a large amount of effort preparing drinking water safety plans to meet the much higher expectations of the New Zealand Drinking-water Safety Plan Framework (Ministry of Health, 2018), which are largely similar to the requirements of section 31 of the Bill.

3.74. Christchurch City Council had its water safety plan for Akaroa/Takamatua approved in 2020. It seems overly onerous to require water suppliers to submit a new drinking water safety plan so soon if one has already been approved under the revised framework.

3.75. The Council recommends that section 4(3) is amended to allow those large water supplies that have an approved drinking water safety plan under the New Zealand Drinking-water Safety Plan Framework (Ministry of Health, 2018) to have five years from the date of approval of that drinking water safety plan to submit a new drinking water safety plan.

Compliance requirements for small drinking water supplies

3.76. The Bill will replace Part 2A of the Health Act 1956. Under the Health Act only drinking water supplies that service at least 25 people at least 60 days a year are subject to the Act's drinking water provisions.

3.77. The Bill significantly increases the number and types of drinking water supplies that will fall under the provisions of the Bill, with the definition of a drinking water supplier expanded to mean any person supplying drinking water other than a domestic self-supplier.

3.78. The Bill indicates that regulation is to be "proportionate to the scale, complexity and risk profile of each drinking water supply". However the Bill is not clear with respect to the compliance requirements of very small drinking water suppliers that were not covered under the Health Act, and how proportionality will be achieved.

3.79. For example a well or spring that services more than one property would be required to fully comply with the drinking water standards, be a registered drinking water supplier and have a drinking water safety plan. This appears to place significant obligations on what are likely to be private individuals operating these very small supplies.

3.80. We note that the exposure draft of the proposed new drinking water standards and operational rules have not yet identified requirements for very small drinking water suppliers (those supplying between 2 and 50 people).

3.81. The Bill does provide for a 5-year transition period for drinking water supplies serving less than 500 people for at least 60 days per year to provide Taumata Arowai with their drinking water safety plans. However, the Bill does not otherwise provide for a transitional period for compliance with the New Zealand drinking water standards, although it does provide the chief executive of Taumata Arowai with the authority to "exempt any drinking water supplier or class of drinking water supplier from compliance".

3.82. The Council recommends that the Bill provides for a transition period for compliance with the drinking water standards for small drinking water supplies. This is particularly critical for small drinking water suppliers that were not previously subject to drinking water legislation and regulations.

4. Summary and conclusions

4.1. The Council remains committed to ensuring our residents have access to safe drinking water, which we consider can be provided through a risk-based approach as demonstrated through robust drinking water safety plans and source water risk management plans.

4.2. The Council has identified three key areas of concern, and provided commentary on them:

- Safe drinking water and residual disinfection requirements
- Protection of drinking water sources and the requirement to treat all source water
- Consequences for territorial authorities

4.3. We have also provided comments and recommendations on a number of other matters in the Bill.

4.4. In brief, the Council supports:

4.4.1. Initiatives aimed at a more robust and comprehensive three waters management regime

4.4.2. Key points of submissions of Waimakariri District and Selwyn District Councils

4.5. The Council recommends:

4.5.1. Reviewing the links between sections 57 and 31 and their definitions to ensure that they are compatible with each other.

4.5.2. Amending Section 57 to allow water suppliers to apply for an exemption from providing residual disinfection, and that only if that exemption is declined and a reasonable time has elapsed to allow for the design and installation of the necessary equipment should the requirement to provide residual disinfection come into effect.

4.5.3. The Health Select Committee considers recommending the establishment of an independent review authority to review decisions on applications for exemption made by Taumata Arowai.

4.5.4. Section 31(2) is rewritten to read:

A multi-barrier approach to drinking water safety is one that Taumata Arowai considers will –

(a) prevent hazards from entering the raw water; and

(b) if required to achieve compliance with maximum acceptable values in the drinking water standards, remove particles, pathogens, and chemical and radiological hazards from the water; and

(c) if required to achieve compliance with maximum acceptable values in the drinking water standards, kill or inactivate pathogens in the water by disinfection; and

(d) maintain the quality of water in the reticulation system.

4.5.5. Amending Section 198 to apply to a water services entity rather than the territorial authority, for those services it provides, if one has been formed as a result of the government's Three Waters Reform.

4.5.6. Funding is provided by Taumata Arowai to territorial authorities and water services entities to enable them to bring private supplies up to the standard required to achieve statutory compliance.

4.6. The Council encourages

4.6.1. the Government to undertake the amendments of the Drinking Water NES signalled in the 2019 discussion document Action for Healthy Ways.

4.6.2. The Government to undertake further investigation of the impacts to public health of nitrates in drinking water.

4.7. The Council further recommends:

4.7.1. Adding wastewater and stormwater services to the purpose of the Bill.

4.7.2. Clarifying whether 'officer' includes a private individual providing drinking water to a neighbour.

4.7.3. Adding definitions of 'residual disinfection' and 'disinfection'.

4.7.4. Improving the wording section 7(1) and 7(3)(c) to avoid confusion.

4.7.5. Backflow prevention devices should only be considered part of the drinking water supply if they are installed on the public side of the point of supply.

4.7.6. Amending the definition in Section 9(1)(b) to read:

includes –

(i) the point of supply; and

(ii) any end-point treatment device installed by the water supplier, or required to be installed by the water supplier

(iii) any backflow prevention device on the public side of the point of supply; but

4.7.7. Reviewing the meaning of 'owner' to consider the fact that a drinking water supply may have different owners for different components.

4.7.8. Defining the term ‘toby’ in Section 12 using the definition from the Health Act 1956 Section 69G.

4.7.9. Considering transitionary arrangements for lead-in timeframe for drinking water suppliers to fully comply with standards that have not yet been released.

4.7.10. Adding provisions for lead-in timeframes to comply with current and future revisions of the standards to Schedule 1 Part 1 Section 3.

4.7.11. Amending Section 22(2)(f) to only apply to exceedances of the maximum acceptable values in the drinking water standards.

4.7.12. Defining the term ‘reasonably practical steps’ using the wording from Section 69H of the Health Act 1956, but amended to use the terminology ‘reasonably practicable steps’ in place of ‘practicable steps’.

4.7.13. Defining ‘Sufficient quantity’ in a less subjective manner. For example according to the World Health Organisation between 50 and 200 litres of water per person per day are needed to ensure that most basic needs are met and few health concerns arise.

4.7.14. Deleting ‘restriction’ from Section 25(4) or otherwise permitting restrictions for demand management.

4.7.15. Considering how Section 25 may be inconsistent with Te Mana o Te Wai.

4.7.16. Amending Section 26 to apply only for gazetted fire-fighting areas

4.7.17. Adding the requirement of Clause 69ZZZ(4) of the Health Act for a drinking water supplier to test each backflow prevention device in its network each year, and the provision to require the property owner to pay for the cost of the test.

4.7.18. Considering how small drinking water suppliers will meet requirements for drinking water safety plans under Section 30.

4.7.19. Expanding section 30 to include a requirement for all drinking water safety plans to be updated at least every five years.

4.7.20. Adding the National Environmental Standard for Sources of Human Drinking Water to Section 42(2).

4.7.21. Recognising the requirements under other legislation and regulations for regional councils to monitor water quality of drinking water sources in Section 43.

4.7.22. Amending Section 45 to reflect that regional councils’ assessments should be done in conjunction with drinking water suppliers rather than in isolation.

4.7.23. Adding a sub-section to Section 51 to require provision of templates and models for small drinking water supplies in advance of compliance deadlines.

4.7.24. Amending Section 55(1) to only require registered drinking water suppliers to immediately advise Taumata Arowai any changes to their registration details.

4.7.25. Replacing ‘territorial authority’ with ‘drinking water supplier’ in Section 61(2)(f) and (g) as they would be best placed to supply drinking water supply in an emergency.

4.7.26. Amending Section 72(1) to read:

> *A drinking water supplier must use an accredited laboratory, or a calibrated online or handheld analyser checked with a suitable standard, to analyse source water, raw water, and drinking water as part of any monitoring requirements in compliance rules or a drinking water safety plan.*

4.7.27. Amending Sections 77 and 78 to clarify whether laboratories currently accredited under IANZ accreditation programme must undertake a separate accreditation process, or if their current accreditation will carry forward once the Bill is enacted in a similar way to approved drinking water safety plans.

4.7.28. Including which analyses and parameters the laboratories are accredited to perform in the register of accredited laboratories.

4.7.29. Clarifying the definitions 'wastewater network and stormwater network' as to what constitutes a wastewater and stormwater network in terms of size and scale.

4.7.30. Adding the offence of contaminating raw water or polluting a water supply in section 69ZZ from the Health Act.

4.7.31. Expanding the Bill to include a requirement for Taumata Arowai to develop regulations for non-potable reuse of treated wastewater.

4.7.32. Providing a transition period for compliance with New Zealand drinking water standards for small drinking water supplies.

4.7.33. Amending Section 4(3) of Schedule 1 to allow those large water supplies that have an approved drinking water safety plan under the New Zealand Drinking-water Safety Plan Framework (Ministry of Health, 2018) to have five years from the date of approval of that drinking water safety plan to submit a new drinking water safety plan.

4.8. The Council also supports:

4.8.1. Exemptions to residual treatment, but with improvements to clarify transitional requirements for suppliers whose drinking water supplies do not already include residual disinfection

4.8.2. Addressing backflow prevention in Section 27(2)(b).

4.9. Thank you for the opportunity to provide this submission. For any clarification on points within this submission please contact Diane Shelander at 03 941 8304 or diane.shelander@ccc.govt.nz.

Yours sincerely,

Hon Lianne Dalziel
Mayor of Christchurch

Appendix A

Non-Chlorination Case Studies Report (GHD, 2018)

Summary

The purpose of the report was to provide Christchurch City Council with alternative methods used overseas to supply drinking water without the use of residual chlorine in the network.

The report focused on the Netherlands. There are eleven Dutch water supply companies supplying drinking water to approximately 17 million people. At the time of the report approximately 85 per cent of all Dutch water supplies do not use residual chlorination within their pipe networks, except in the case of a short-term emergency contamination event. In Switzerland that figure is 70 per cent and in Germany it is 50 per cent.

The report states that the Dutch take a two-pronged approach:

- contamination has to be prevented in all three stages of supply - source, treatment and distribution)
- chemical treatment should be kept to a minimum

The approach taken by the Dutch has resulted in a rate of waterborne disease 4 to 5 times lower than in the UK and USA where residual treatment is mandatory[2].

The report concludes:

> "*It is possible to implement a non-chlorinated water supply that is similar to best practice in Western Europe. While Christchurch has a unique hydrogeological setting with relatively low risk source water, higher standards and barriers at the water source and in the distribution network may likely be required to reduce risks further.* "

The full report in its entirety is available on request.

[2] K. D. Beer et al., Morb. Mortal. Wkly. Rep. 64, 842 (2015). B. Guzman-Herrador et al., Eurosurveillance 20, 21160

Appendix B

Permanent Treatment of Christchurch Water Supply – Preliminary Assessment of Options (WSP, 2019)

Summary

The purpose of the report was to provide Christchurch City Council with an assessment of the options, costs and operational implications of adding permanent water treatment to the existing public water supply system that is not already permanently chlorinated.

The report considered several technologies for disinfecting drinking water both with and without a disinfection residual.

The report notes that if compulsory treatment is required the impact would be significant, as the existing infrastructure was not designed to allow for installation of permanent treatment equipment.

Rough order costings (as determined in 2019) were:

Capital Costs (rounded)

Chlorine	$26M
UV	$75.3M
UV & chlorine	$86.1M

Annual Operating costs (rounded)

Chlorine	$2M
UV	$1.7M
UV & chlorine	$2.9M

The estimated timeframe for undertaking works for the UV and chlorine option ranged from 5.5 to 8.5 years, with the chlorine-only option estimated to take about half that time. This estimate does not take into account delays due to any number of factors.

The full report in its entirety is available on request.