

# WATER SAFETY CONSULTATION

STATEMENT OF PROPOSAL

**4 AUGUST – 4 SEPTEMBER 2020**

HAVE YOUR  
**SAY**

We're looking at the best way to ensure we're supplying clean, healthy water through all the Council owned supplies in the District.

Most of our water supplies are chlorinated. We're proposing to permanently chlorinate the rest.

Please read on for more information and share your thoughts on what we're proposing.



# CONSULTATION CLOSES 4.00 PM FRIDAY 4 SEPTEMBER 2020

Here's how you can have your say:



Fill in the submission form attached, scan and email it to **info@tasman.govt.nz** with 'Water Safety Consultation' in the subject line.



Head to [tasman.govt.nz/feedback](https://tasman.govt.nz/feedback) to submit your feedback online.



Fill in the submission form attached to this document and post to:  
**Water Safety Consultation**  
Tasman District Council  
Private Bag 4, Richmond 7050  
Or drop off at any Council Service Centre or Library.

Hard copies are also available at the following Council offices and libraries:

- Tasman District Council Offices:**
- Golden Bay: 78 Commercial Street, Takaka 7142
  - Motueka: 7 Hickmott Place, Motueka 7143
  - Murchison: 92 Fairfax Street, Murchison 7007
  - Richmond: 189 Queen Street, Private Bag 4, Richmond 7050
- Tasman District Libraries:**
- Motueka: 12 Pah Street, Motueka 7120
  - Murchison: 92 Fairfax Street, Murchison 7007
  - Richmond: 280 Queen Street, Private Bag 3, Richmond 7050
  - Takaka Memorial: 3 Junction Street, Takaka 7110



# BACKGROUND

In August 2016 there was a gastroenteritis outbreak in Havelock North after the town's drinking water supply became contaminated with *Campylobacter*.

At least five thousand five hundred (5,500) people became ill and 45 people were hospitalised. The outbreak is thought to have contributed to four deaths, and some people continue to suffer ongoing health complications.

The outbreak prompted a Government Inquiry and in December 2017 a final report outlined several recommendations to help stop this happening again. As a council we now need to respond.

The recommendations from the Havelock North Inquiry focused on six fundamental principles that all councils need to conform with and embed in their practices.

The principles are:

1. A high standard of care must be embraced.
2. Protection of source water is of paramount importance.
3. Maintain multiple barriers against contamination.
4. Change precedes contamination.
5. Suppliers must take responsibility for providing the safety of drinking water.
6. Apply a preventive risk management approach.

The third of the Government's six key principles for water safety is a 'multi-barrier approach'. Examples of barriers are:

- Protection of the water source
- Filtration of the supply
- Ultraviolet treatment of the supply
- Chlorination (residual disinfection) of the supply

Council operates several water supplies and treatment plants throughout Tasman District, ten of these supplies already have permanent chlorination. There are five supplies that do not have permanent chlorination.

## Supplies with permanent chlorination

Brightwater / Hope	Murchison
Collingwood	Pōhara
Dovedale	Redwood Valley
Eighty-Eight Valley	Tapawera
Māpua / Ruby Bay	Wakefield

## Supplies without permanent chlorination

Hamama*	Riwaka / Kaiteriteri**
Motueka	Upper Takaka
Richmond**	

\*Community operated scheme

\*\*Has chlorination equipment at the treatment plant

## HERE'S WHY THIS IS IMPORTANT

Our water sources can be affected by a range of contaminants that may make it unsafe to drink or look and smell unappealing. Water treatment is any process that improves the quality of the water to make it safer to drink.

A multi-barrier approach uses several methods to treat water, reducing the risk of contaminated water reaching the point of supply and people.

## WHAT ARE WE PROPOSING?

Currently most of our water supplies are chlorinated. We're proposing to permanently chlorinate the rest: Upper Takaka, Hamama, Motueka, Riwaka / Kaiteriteri and Richmond.

This would ensure we meet the requirements of a multi-barrier approach, which is an internationally recognised cornerstone for managing contamination risk in water supplies. The use of more than one barrier is encouraged in the drinking water standards because no single barrier is effective against all sources of contamination and any barrier can potentially fail at any time.

## HOW DO THE BARRIERS WORK TOGETHER?

The first step is to protect the water source. This is the area around the water supply intake, where contaminants could get into the supply. What happens on the land in these areas needs to be strictly controlled. The catchment of the intake also needs to be protected, to prevent contamination of the source water from activities farther away.

Water treatment happens next. This includes filtration to remove particles and sediment followed by disinfection. Disinfection could be achieved through Ultra-Violet (UV) treatment and/or chlorine dosing. UV treats water at a single point – prior to leaving the treatment plant. It does not provide lasting protection as it travels through the pipe network.

Chlorination is different. It provides a lasting treatment, (the technical term is residual disinfection). That means the treated water remains safe throughout the pipe network.

# WHY DO WE NEED TO CHANGE WHAT WE ARE DOING?

All water suppliers have an obligation to comply with both the Health Act 1956 and meet the Drinking Water Standards for New Zealand.

That means our focus must be on supplying water that is always safe to drink. The risk of contamination in the network has been well documented in water supplies throughout Tasman District, the rest of New Zealand and around the world.

Under the current systems in place on some of our water supplies, there are challenges to meet the standard required. For instance, while council carries out testing of supplies, it can take at least 24 hours to get a sampling result. If contamination is found, given that timeframe, it's likely that some, if not all, of the customers on that supply could potentially have been exposed to contaminated water for up to 48 hours before disinfection is introduced. On some water supplies, sampling is only carried out once a week.

There have been regular instances when testing has picked up bacteria in our water supplies including Richmond and Riwaka/Kaiteriteri. Bacteria hasn't been detected in samples taken directly after water has been treated with UV in the treatment plants, so we know the contamination has occurred in the network.

One of the recommendations from the Havelock North Inquiry was to form a Water Services Regulator, with strict new compliance standards and enforcement.



## HOW CONTAMINATION GETS INTO THE WATER SUPPLY

Although source groundwater in Tasman is generally good quality, contamination can happen within the network that brings the water to you.

Contamination can come from several sources:

- Maintenance work on the water supply network.
- Backflow events (water re-entering the supply).
- Illegal connections to water networks.
- Illegal water takes from hydrants.
- Damage to the network by someone working nearby.
- Faulty fittings.
- Birds or vermin getting into storage reservoirs through holes.
- Damage to reservoir roofs (cracks).
- New connections (subdivisions) not being properly disinfected.
- Pressure drops in the supply during extreme demand (firefighting).
- Biofilms growing within old pipes.

- Septic tanks and wastewater pipe breaks near water sources and water pipes with leaks.
- Water pipe deterioration and breaks.

Many of these risks produce microbiological contamination that could be harmful to consumers. Chlorine in the water kills the microbes, giving greater protection.

If the water is coming directly from rivers or creeks it could be of lesser quality and contamination risks are significantly higher.

### WHAT DOES WATER DISINFECTION MEAN?

This is the process of removing, deactivating or killing of pathogens and or bacteria that can cause people to get sick.



# WHY CHLORINATE?

To put it simply, chlorination provides another barrier (residual disinfection) and is the most cost-effective means of disinfecting the entire drinking water network (distribution pipes, pump stations and reservoir).

Using chlorine significantly reduces the risk of public illness due to water contamination and ensures that most disease-causing microorganisms including bacteria, viruses, and protozoa are destroyed. Chlorine is used because it is a very effective disinfectant, and a residual concentration can be maintained to guard against most biological contamination in the water distribution system.

It's our responsibility to provide safe drinking water and to do everything practicable to meet the NZ Drinking Water Standards.

The Director-General of Health has issued a statement reminding water suppliers of their responsibilities under the Health Act 1956. He strongly advises water should be treated to ensure residual disinfection in the network, with chlorination the most effective treatment option. The Government has signalled its intention to make residual disinfection of all drinking water compulsory.

Chlorine has been used for water treatment since around 1900 and is now the most widely used method of disinfection around the world and in New Zealand.

The Council supplies water to customers throughout the communities served by reticulated water supplies. This includes more vulnerable people like young children, the elderly, immune-compromised or unwell people who are more likely to get sick from unsafe water. It's essential that places like hospitals, early childhood education centres, schools, care homes and doctor's surgeries have clean water.

The health risks associated with exposure to contaminated water can lead to severe illness, lifelong complications or death. It is these people in particular who we must protect.

## HOW DOES CHLORINATION WORK?

Chlorine inactivates and kills pathogenic microorganisms, preventing them from causing disease.

The concentration of chlorine and the time it can make contact with microorganisms is important. At most of our sites, water is delivered to a 'contact tank' where chlorine is added and the 'holding time' is at least 30 minutes. This allows chlorine to have a chance to be as effective as possible.

A chlorine residual is left in the water and it makes its way through our network of pipes and reservoirs to the very last house at the end of the line. This 'residual' of chlorine in the network is just as important as the chlorine at the treatment plant as it keeps water safe throughout the network as it makes its way to customers.

## HOW MUCH CHLORINE WILL BE USED?

Generally, Tasman has good source water quality so that means less chlorine would be needed.

We propose to use as little as possible to keep your water safe. Typically we will use a dose of 0.5 to 1.0mg of chlorine for every litre of water. This will give a residual dose of 0.3mg per litre in what comes through your taps (0.2mg is the minimum requirement under the drinking water standards).

## IS CHLORINE SAFE?

*Chlorine has been used safely all over the world for around 120 years. It keeps millions of people – including most of New Zealand – safe from waterborne illness.\* As mentioned above, we'll carefully manage the process to ensure levels of chlorine in the water people drink are minimal while still being effective.*

## MITIGATING THE EFFECTS OF CHLORINE

If you have concerns about taste and odour of chlorine, there are steps you can take:

- If you don't like the taste of chlorine, you can lessen it by chilling the water before drinking it or leaving the water in a jug at room temperature for a while first.
- A water jug with a carbon filter will also take away most of the chlorine.
- Install an under-bench filter. Chlorine and any associated by-products can be removed by using a granulated, activated carbon (GAC) filter. These are available from hardware supplies stores and water filter companies.
- If you have fish, don't forget to use a neutralising agent if you change any water in the tank (this is available from pet stores).

For a small number of people chlorine can be an irritant for an existing condition such as asthma or eczema. If you notice increased skin irritation, asthma symptoms or other symptoms – seek medical advice. If you feel your skin getting dry or itchy use moisturiser after having a shower or bath.

\*Source: Canterbury Medical Officer of Health Dr Ramon Pink



## WHAT ARE THE CONSEQUENCES IF WE DON'T CHLORINATE?

Any drinking water system must have and maintain robust multiple barriers against contamination. No single barrier is effective against all sources of contamination and potentially, any single barrier can fail. If we don't introduce a chlorination barrier, we risk the chance that if there is a barrier failure it could result in community wide illness (or death) such as the Havelock North outbreak in 2016.

There is also the risk that our Water Safety Plan (WSP) will not be approved. A WSP is essential to the good management of a drinking water supply and it covers the six fundamental principles of drinking water safety in New Zealand, including the multi barrier approach.

The Health Act 1956 states that, as a water supplier, we must have an approved WSP.

Failure to comply with the Drinking Water Standards, which includes not having an approved WSP, can result in prosecution.

## CHLORINE IN THE ENVIRONMENT

Chlorine readily reacts with organic matter, whether this be soil in your garden or organic matter in your wastewater. This means that fairly quickly the chlorine in tap water is 'bound up' and no longer has any disinfectant properties (cannot kill bacteria and cannot react with other chemicals).

- If you water your garden with chlorinated water it is very unlikely that the chlorine will make its way into the groundwater. The first few centimetres of soil will likely absorb it all. There is no evidence that chlorinated water has any effect on your garden but you can install a rainwater tank for watering if you wish.
- Chlorinated water will have no effect on your septic tank function. It's similar to using a small amount of bleach in the laundry or toilet as the concentration levels are so low. Likewise, chlorinated water in the wastewater system is unlikely to be detectable by the time it reaches the treatment plant.
- Water that enters the stormwater system, perhaps through excessive garden watering, car washing or leaks, is unlikely to have any effect on the environment, again due to the very low levels of chlorine present.
- Fish ponds and tanks should not be filled with chlorinated water and most pet shops sell a product for treating the water.

## OTHER THAN CHLORINE, ARE THERE OTHER OPTIONS TO ACHIEVE RESIDUAL DISINFECTION?

We've investigated other options. You can see them here, including the pros and cons for each.

Options	Pros	Cons
<p><b>Option 1:</b> No change to existing operations and only chlorinate when there is a bacterial contamination event, major works are undertaken, or failures occur on the network.</p> <p>Costs include the Council's existing operating budgets and capital works plan.</p>	<p>No chance of chlorine taste and odour, other than following a contamination event.</p>	<p>Risk of a contamination event stays the same. The elderly, immune-compromised and infants are more vulnerable to getting sick from unsafe water.</p> <p>Chlorine dosing after bacteria are detected could be too late to prevent people being sick.</p> <p>When contamination occurs, boil water notices are needed until the emergency chlorination takes effect.</p> <p>Very unlikely our Water Safety Plans would be approved without residual disinfection, and as a consequence, would not comply with DWSNZ.</p> <p>It takes time for chlorine to travel through the network to combat contamination.</p> <p>Can be difficult to keep customers informed of the risk during that process.</p> <p>Risk of disease outbreaks at holiday destinations, particularly campgrounds, could be much harder to control.</p> <p>Increased operational costs for each contamination event due to laboratory and contractor costs and staff time.</p> <p>Severe inconvenience for businesses and at-risk customers who find it hard to boil water, in particular care homes.</p> <p>Concrete reservoir roofs which have cracks constitute a higher risk when chlorine isn't present so need to be sealed with a membrane, which is expensive.</p>

Options	Pros	Cons
<p><b>Option 2: Implement greater management measures, excluding chlorination, to mitigate the risk of contamination.</b></p> <p>Mitigation measures include increased leak detection, water sampling regime, pipe renewals, additional reservoir roof upgrades and changes to pressure zoning.</p> <p>Costs include:</p> <ul style="list-style-type: none"> <li>• Council’s existing operating budgets and capital works plan.</li> <li>• Additional \$2 million per year in operating costs.</li> <li>• Additional \$1 million in upgrade costs.</li> </ul>	<p>Has a higher level of protection of the water supply network than the current measures.</p> <p>No user concerns about the chlorine taste and odour in the water supply.</p>	<p>These additional measures will not guarantee the water is as safe as having residual disinfection (by using chlorine).</p> <p>Does not guarantee a continually safe drinking supply water to all customers, all of the time, as even with daily sampling it could be 24 hours or more, depending on sampling times, before contamination is identified.</p> <p>Chlorine dosing after bacteria is detected could be too late to prevent consumers from being adversely affected.</p> <p>Risk of a contamination event stays the same. The elderly, immune-compromised and infants are more vulnerable to getting sick from unsafe water.</p> <p>These additional measures do not guarantee that our Water Safety Plan will be accepted – meaning we may not comply with the Drinking Water Standards.</p> <p>Significantly increases the cost of managing the water supply network (estimated to be over \$2 million per year).</p> <p>Commercial customers who require residual disinfection will require their own point-of-use treatment.</p> <p>Concrete reservoir roofs, which have cracks, have been identified as a high risk and must be sealed with a membrane, which is a very costly exercise.</p> <p>When contamination occurs, boil water notices are needed until the emergency chlorination takes effect.</p> <p>It takes time for chlorine to travel through the network to combat contamination. Can be difficult to keep customers informed of the risk during that process.</p> <p>Risk of disease outbreaks at holiday destinations, particularly campgrounds, could be much harder to manage.</p> <p>Increased operational costs for each contamination event due to laboratory and contractor costs and staff time.</p> <p>Severe inconvenience for businesses and at-risk customers who find it hard to boil water, particularly for rest homes.</p>
<p><b>Option 3: Permanent chlorination of all Council water supplies.</b></p> <p>Costs include:</p> <ul style="list-style-type: none"> <li>• Council’s existing operating budgets and capital works plan.</li> <li>• Additional \$25,000 per year in operating costs.</li> </ul>	<p>Provides continually safe drinking water to all customers.</p> <p>Reduces resources and costs incurred during bacterial contamination events or following major construction works, pipe breaks or network failures.</p> <p>Significantly lower overall cost of monitoring the networks for likely contamination.</p> <p>Commercial customers who require residual disinfection will no longer require their own treatment.</p>	<p>Extra operational cost for residual disinfection. (Although this would be much less than the cost of the mitigation measures required to protect the network in the absence of residual disinfection, which would still not guarantee a continually safe water supply).</p> <p>Some customers may object to the taste and smell of the chlorine, and may require a handheld or under-sink activated carbon filter to make it palatable.</p> <p>Customers with existing skin conditions aggravated by chlorine may wish to install an activated carbon filter at the point of entry of the water supply into their house.</p> <p>Some commercial customers may need to install chlorine removal equipment.</p>



# WATER SAFETY CONSULTATION **SUBMISSION FORM**

Please complete the form below and return it to us by Friday 4 September 2020.

You can also make your submission online at [tasman.govt.nz/feedback](https://tasman.govt.nz/feedback).

Name / Organisation \_\_\_\_\_

Physical address \_\_\_\_\_

Postal address \_\_\_\_\_ Postcode \_\_\_\_\_

Email \_\_\_\_\_ Phone \_\_\_\_\_

A hearing will be held on Tuesday 6 October 2020. Do you want to speak to your submission?  Yes  No

Preferred method of contact  Email  Post

Age (optional)  16–24  25–35  36–50  51–65  66+

Gender (optional)  Female  Male Ethnicity (optional) \_\_\_\_\_

*This information will be used for statistical purposes only, to help us understand who is engaging with the Council.*

**We are proposing to chlorinate five water supplies, which one are you connected to? Tick one**

- Hamama  Kaiteriteri / Riwaka  Motueka  Richmond  Upper Takaka  
 Not connected to any of these but interested in the process

**Do you support the proposal to chlorinate your water supply?**  Yes  No  N/A

If you answered no, what other solutions would you prefer to use to ensure we can deliver safe water, that complies with the Health Act 1956 and the Drinking Water Standards New Zealand?

---

---

**Are there other actions we could take to reduce the impact of chlorine?**

---

---

**Are you aware of an alternative method to achieve residual disinfection other than using chlorine? If so, please advise.**

---

---

**Any other comments:**

---

---

Please attach extra sheets if you need more space.

*Feel free to contact us:*



**Tasman District Council**  
Email [info@tasman.govt.nz](mailto:info@tasman.govt.nz)  
Website [tasman.govt.nz](https://tasman.govt.nz)  
24 hour assistance

**Richmond**  
189 Queen Street  
Private Bag 4  
Richmond 7050  
New Zealand  
Phone 03 543 8400  
Fax 03 543 9524

**Murchison**  
92 Fairfax Street  
Murchison 7007  
New Zealand  
Phone 03 523 1013  
Fax 03 523 1012

**Motueka**  
7 Hickmott Place  
PO Box 123  
Motueka 7143  
New Zealand  
Phone 03 528 2022  
Fax 03 528 9751

**Takaka**  
78 Commercial Street  
PO Box 74  
Takaka 7142  
New Zealand  
Phone 03 525 0020  
Fax 03 525 9972