

**QLDC Council**  
**17 March 2022****Report for Agenda Item | Rīpoata moto e Rāraki take : 5****Department: Property & Infrastructure****Title | Taitara Proposed QLDC Backflow Prevention Policy****PURPOSE OF THE REPORT | TE TAKE MŌ TE PŪRONGO**

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- 1 The purpose of this report is to present the QLDC Backflow Prevention Policy for adoption.

**EXECUTIVE SUMMARY | WHAKARĀPOPOTOTANGA MATUA**

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- 2 A backflow event occurs when drinking water flows in the opposite direction than intended, introducing contaminants into the water supply, and compromising the safety of the water.
- 3 Backflow events can be prevented by installing backflow prevention devices inline of the water supply. The appropriate type of backflow prevention device needs to be selected commensurate to the risk the downstream water use presents to the network.
- 4 The Health (Drinking Water) Amendment 2007 requires that the water supplier ensures adequate backflow protection is provided to protect the water supply network and its users.
- 5 QLDC requires a clear policy document to detail how the legislative requirements will be achieved. The policy will provide guidance around how backflow risk should be assessed, and the appropriate device selected. In addition the policy will clarify device ownership, and assign responsibilities for maintenance, testing and renewal.

**RECOMMENDATION | NGĀ TŪTOHUNGA**

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That Council:

1. **Note** the contents of this report: and
2. **Adopt** the Backflow Prevention Policy

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22/02/2022

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1/03/2022

## CONTEXT | HOROPAKI

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- 6 Backflow occurs when water flows in the wrong direction, from the customers' property into the drinking water mains supply, potentially introducing contamination and compromising water safety. Backflow is caused by a pressure differential, either higher pressure inside the property, or lower pressure in the mains supply. The outcome of a backflow event depends on the level of risk the use within the property presents. The consequences of a backflow event can range from discolouration through to death/serious injury.
- 7 Backflow can be prevented by installing a backflow prevention device (BFD) inline of the water feed. A typical backflow prevention device includes a mechanism which does not allow water to travel in the opposite direction than intended. The complexity of the devices increases with the risk presented by the activity undertaken within the property, ranging from simple dual check valves to reduced pressure zone (RPZ) valves.
- 8 Adequate backflow prevention is required under a number of pieces of legislation, including The Building Act 2004, The Health Act 1956, Health (Drinking Water) Amendment (HDWA) 2007 and QLDC Integrated Three Waters Bylaw 2020.
- 9 The Building Act backflow protection requirements focus on protecting the *building users* from contamination. These requirements are currently being fulfilled by QLDC through the Building Consent and the Building Warrant of Fitness (BWF) processes.
- 10 The HDWA backflow protection requirements focus on protecting the *network supply* from contamination. To date, the RM Engineering team have been taking a conservative approach when determining the appropriate boundary backflow device as there has not been an approved policy in place.
- 11 The key requirements of the HDWA are:
  - a. It requires that a backflow preventer is fitted in situations where a network supplier considers a need to protect the distribution system from risks of pollution caused by water and other substances on properties connected to the system.
  - b. It allows Council to install these devices and recover costs from the customer.
  - c. It requires the water supplier to maintain a register of all boundary BFD, including non-testable dual check valves (for very low risk i.e. residential properties).
  - d. It makes Council responsible for ensuring that boundary backflow devices are tested annually. Council may recover costs associated with testing from the customer.
- 12 The purposes of the QLDC Backflow Policy are to:
  - a. Protect public health through protection of the public network;
  - b. Document how QLDC achieves compliance with its legislative requirements;

- c. Inform the public/designers/developers of their requirements under legislation and the expectations of QLDC;
  - d. State QLDCs ownership model, maintenance and testing regime;
  - e. Provide a framework for this to be enforced; and
  - f. Define how hazard levels and appropriate backflow prevention measures are determined.
- 13 The objective of this Council report is to gain approval from Council of the draft Backflow Prevention Policy.
- 14 Key decisions within the draft policy to be noted by Council are as follows:
- a. Accept the proposed ownership model (devices to be owned by the property owner to which they provide protection from).
  - b. Accept the proposed maintenance/testing regime for recommendation (QLDC to offer a testing service while providing the option for the property owner to undertake their own testing if preferred, noting that all costs associated with maintenance and testing will be borne by the property owner).
  - c. Accept proposed risk assessment approach (refer policy).
  - d. Accept that the proposed obligation to undertake five yearly district-wide backflow surveys, and the associated costs.
- 15 The Backflow Prevention Policy was presented at an Infrastructure Committee workshop held on 29 November 2021. The ongoing surveying requirements, ownership model and the maintenance/testing regime were workshopped at this forum.
- 16 A number of meetings have been held over December and January with the Infrastructure, Resource Management Engineering and Building teams within Council to develop the QLDC Risk Assessment Approach for recommendation. This is the first time the proposed policy has been presented to Full Council.
- 17 The Backflow Prevention Policy was uploaded to the Let's Talk page for public consultation from 31<sup>st</sup> January – 20<sup>th</sup> February. No public feedback was received.

## ANALYSIS AND ADVICE | TATĀRITANGA ME NGĀ TOHUTOHU

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### **Building (Point of Source) versus Boundary (Point of Supply) Backflow Prevention Devices**

- 18 As mentioned above, the Building Act backflow protection requirements are written to protect the *building users*. At the time of building consent application, Council assesses the level of risk that the water use within the building presents to the building users. Appropriate backflow protection measures will be required at the Point of Source i.e. where the water is drawn and used for an activity. These backflow devices are specified systems under the Building Code, and are recorded against the Building Consent and

BWOF. These backflow specified systems must be tested as required (usually annually) as a part of the customers annual BWOF. If use within the building triggers a Building Change of Use, then the Council will reassess the risk and requirement for the point of source backflow device.

- 19 QLDC is responsible for ensuring that the *network is protected* from contamination under the HDWA. The appropriateness of network backflow protection is assessed by the RM Engineering team as part of the Resource Consent or Connection to Council Services processes. The QLDC Backflow Prevention Policy will provide guidance to the RM Engineering team to ensure appropriate protection is provided and a consistent approach is taken.

#### **Related Works: Audit, Register and QLDC COP Drawing Update**

- 20 Water New Zealand have produced a guidance document *Boundary Backflow Prevention for Drinking Water Supplies* in 2019, which sets out best practice for councils to ensure they meet the requirements and intent of the HDWA. This guidance document recommends an inspection programme to cover all non-residential properties and residential properties, e.g. Lifestyle blocks, where the water supply may be used for other than domestic purposes. The purpose of the inspection programme is to determine where boundary backflow devices are required to ensure protection of the public network.
- 21 An audit has been carried out across the Queenstown Lakes District throughout 2021 and will finish early 2022. This has focused on the business and commercial areas, QLDC owned properties, as well as activities that are considered high risk in the proposed QLDC Backflow Policy (which is consistent with the Water NZ Guidance document).
- 22 QLDC has commenced upgrading its own properties where they have been found to be presenting a risk to the public network. QLDC will work with those customers that have been found to present a risk to the network to ensure adequate backflow prevention is provided.
- 23 HDWA requires a water supplier to maintain a register of all boundary backflow devices. The findings from the audit will inform the register. The HDWA also requires that backflow devices are tested annually. QLDC will use the register to track the on-going testing of devices.
- 24 The backflow device drawings in the QLDC COP have been updated to include more detail and to be consistent with the proposed Policy.

#### **Point of Supply Definition and Relevance**

- 25 Point of Supply is the point of demarcation between the customer and the Council for ownership and ongoing maintenance responsibilities.

- 26 The QLDC Integrated 3 Waters Bylaw 2020 defines the Point of Supply as:
- a. The Point of Supply for water connections is the outlet of the Service Valve or Meter fitting closest to the private pipe. This applies whether the Service Valve/meter is inside or outside the property boundary.
- 27 The draft Backflow Prevention Policy proposes an ownership model that is consistent with this definition.

#### **QLDC Backflow Ownership Model for Boundary Devices**

- 28 HDWA allows for ownership of the boundary devices to be either the customer or the network supplier. The policy recommends that the boundary devices are customer owned as this is consistent with the approach for installations to date. This is also consistent with the Water Supply Bylaw POS definition, QLDC COP and Health Act. Council will not have control over the asset so there is some risk of non-compliance, however this will be managed through the maintenance and testing model proposed.
- 29 Council owned was also considered. The benefits of this model is that Council would have control over the asset, meaning there would be a lower risk of non-compliance. However, given that many boundary devices are already installed within property boundaries this option would require customer agreement for Council to enter the property to install, maintain and test. This option would also require a change to the Water Supply Bylaw definition. For these reasons, it was not the preferred.
- 30 Note that Council will own all Very Low Risk backflow devices that are  $\leq 25$ mm diameter. This is because they will be installed in the road reserve (on Council side of Point of Supply) and do not require testing.

#### **QLDC Backflow Maintenance & Testing Model for Boundary Devices**

- 31 HDWA requires that the backflow devices are tested annually. It also requires that a register is kept for all boundary devices. Three options were considered:
- a. Council to organise
  - b. Customer to organise
  - c. Combined – Council to organise the majority, providing customer ability to opt-out.
- 32 All three options involve the customer paying for the maintenance and testing costs, given the recommendation for ownership above in paragraph 30. This is supported by HDWA, noted in paragraph 11.
- 33 Option A provides Council the confidence that the testing and maintenance is carried out as they would be managing the contract. It is expected that economies of scale would be achieved. However, some customers may want control over the asset that they own and are paying for. Council would also need permission to access to undertake testing and access private properties.

- 34 Option B would initially be less administration for Council as the customer would be organising the testing. However, Council are responsible to ensure these are tested annually (under HDWA) and there could be a significant administrative burden in chasing records.
- 35 For Option C, it is expected that most customers would not choose to opt out as this would require effort for them to organise, however this opportunity exists if they have a strong preference to manage themselves. If the customer does not provide Council with approved test prior to date required, then Council will undertake testing and backcharge the customer. It is expected that the volume that Council would be testing would still achieve economies of scale and would give Council confidence that the majority are compliant. Council will still require permission to access to undertake testing and access private properties. Record keeping could also be more challenging in a mixed model.
- 36 Option C is preferred for addressing the matter because it provides the benefits of the economies of scale through bulk testing while giving the customer the option to opt out if they wish. The responsibility of the testing falls with Council so it makes sense for Council to own and manage this process.

#### **QLDC Backflow Policy Risk Assessment Approach**

- 37 For a backflow event to occur, a number of situations must coincide at the same time. For example, a hose that is turned on, sitting in a tub of chemicals when a watermain leak occurs on the street. The low pressure in the watermain could siphon the chemicals from the tub through the system. These could then contaminate other properties from the main. This event is dependent on the hose being submerged in the tub with chemicals at the same time as the pressure differential, which could be low likelihood, however, the outcome could be fatal. In another situation, backflow devices may be installed within the property at the point of source of the risk. This could be sufficient to protect the network from contamination, however, there is a risk that further connections can be made that do not have adequate backflow prevention. The Council must decide what the appropriate approach is to determine boundary backflow devices and meet their requirements of the HDWA. The primary objective is to protect the network, whilst considering the likelihood of certain events occurring in order to prevent an excessive number of backflow prevention devices.
- 38 Building consent, resource consent, and connection to council services applications are existing processes which enable Council to assess the risk that the water use presents to the network, to ensure compliance with the HDWA.
- 39 A QLDC Boundary Backflow Risk Assessment Approach – Decision Tree has been developed for the RM Engineering team to determine the appropriate boundary backflow device at Resource Consent or Connection to Council Services application. The QLDC Backflow Policy includes this as an Appendix, which will help inform developers and designers as to QLDC's boundary backflow device expectations. This Decision Tree allows for boundary requirements to be reduced if there is adequate protection within the property.



**QLDC Backflow Policy ongoing costs related to Surveying requirements as per HDWA.**

40 As explained in paragraph 14 above, the Water NZ guidance document recommends an inspection programme to determine where boundary backflow devices must be installed to protect the network. The guidance document also recommends:

- a. Once a full inspection of such premises in the water supply area has been carried out, it is recommended that random surveys to determine the extent of change of use be carried out from time to time.

41 The QLDC Backflow Policy states that Council undertake these services at 5 yearly intervals.

**QLDC Backflow Prevention Policy Acceptance Options**

42 Option 1: Approve the proposed policy for implementation and enforcement as soon as practicable.

*Advantages:*

43 The sooner the policy is adopted and measures are taken to enforce it, the sooner the key objectives of the policy will be in place, These include:

- a. Protection of public health through protection of the public network.
- b. QLDC's compliance with legislation.
- c. Clear direction for the public/designers/developers of their requirements under legislation and the expectations of QLDC.

*Disadvantages:*

44 Enhanced enforcement of the existing legislative requirements will incur costs to some businesses.

45 Option 2: Not approve the policy

*Advantages:*

46 No advantages.

*Disadvantages:*

47 QLDC will not have a documented framework to meet the existing legislative requirements and to ensure protection of the public network through adequate backflow prevention.

48 QLDC is unable to meet legislative requirements

- 49 The public/developers/designers will not have a clear understanding of QLDCs expectations. This will lead to mixed levels of protection proposed and confusion for the QLDC team processing consents.
- 50 **Option 1** is recommended to ensure public health is protected, compliance with legislation and to give certainty to the market in respect to obligations for backflow prevention.

## CONSULTATION PROCESS | HĀTEPE MATAPAKI:

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### > SIGNIFICANCE AND ENGAGEMENT | TE WHAKAMAHI I KĀ WHAKAARO HIRAKA

- 51 This matter is of low significance, as determined by reference to the Council's Significance and Engagement Policy. The policy may have implications for property owners that require new or upgraded boundary backflow prevention devices. These customers will need to pay for the installation as well as cover all ongoing maintenance and testing costs. However, it should be noted that this requirement is not introduced by this policy and is rather existing through the HDWA.
- 52 The persons who are affected by or interested in this matter will be customers of the water network whose use of the water presents a risk to the mains water supply and trigger a requirement to install a boundary backflow device.
- 53 The Backflow Prevention Policy was uploaded to the Let's Talk page for public consultation from 31<sup>st</sup> January – 20<sup>th</sup> February. No public feedback was received.

### > MĀORI CONSULTATION | IWI RŪNANGA

- 54 No specific consultation with Iwi has occurred or is planned. As the policy is based on existing legislative requirements this has not been considered necessary.

## RISK AND MITIGATIONS | NGĀ RARU TŪPONO ME NGĀ WHAKAMAURUTANGA

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- 55 This matter relates to the Regulatory/Legal/Compliance risk category. It is associated with RISK00029 Contaminated Water Supply – Death of a person(s) within the QLDC Risk Register. This risk has been assessed as having a very high inherent risk rating.
- 56 The approval of the recommended option will support the Council by allowing us to implement additional controls for this risk. This will be achieved by having systems and processes in place to ensure the correct boundary backflow prevention devices are selected, installed and regularly tested.

## FINANCIAL IMPLICATIONS | NGĀ RITENGA Ā-PŪTEA

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- 57 QLDC has used the 3 Waters Reform stimulus funding from Central Government for the initial backflow survey, the installation/upgrade of backflow prevention devices to Council owned premises, the development of the backflow device register, and the finalisation of this policy. These are one-off set up costs.



58 Ongoing costs that will need to be funded include:

- a. Management of backflow compliance – this will include maintenance of the device register, procurement and management of the bulk testing contractor, and chasing outstanding test results. A project to develop these systems is currently underway with Knowledge Management and it is intended to automate the system as far possible so as to allow management within existing resource levels.
- b. Water NZ Guidance document recommends that once the full survey has been carried out that random surveys are carried out to determine the extent of change of use, from time to time. Council Policy recommends these to be carried out at 5 yearly intervals. The cost of these surveys is estimated to be approximately \$30k, funding will be sought through the next Ten Year Plan.

59 Maintenance and testing costs of boundary devices will be passed on to the customer so will not require funding from Council.

## **COUNCIL EFFECTS AND VIEWS | NGĀ WHAKAAWEAWE ME NGĀ TIROHANGA A TE KAUNIHERA**

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60 The following Council policies, strategies and bylaws were considered:

- The QLDC Backflow Policy is consistent with the principles of the Vision Beyond 2050, in particular the people related vision statements as the policy protects all users of drinking water in the district. <https://www.qldc.govt.nz/vision-beyond-2050/>
- QLDC's Integrated 3 Waters Bylaw 2020. The bylaw reinforces the ability for QLDC to install backflow devices where they are deemed necessary to protect the public network. They also reinforce the ability for QLDC to claim costs back from the customer.
- Water Meter Policy 2017. The backflow devices detailed in the revised draft QLDC COP backflow drawings are compatible with the water meter policy.

61 The recommended option is consistent with the principles set out in the named policy/policies.

62 This matter is partially included for in the current Ten Year Plan/Annual Plan

- The 3 Waters Reforms Stimulus fund includes provision for the set up activities associated with enabling compliance with this policy (initial full survey, backflow prevention device register, and backflow prevention upgrades associated with QLDC facilities)
- The current Ten Year Plan does not make allowance for future survey requirements

## **LEGAL CONSIDERATIONS AND STATUTORY RESPONSIBILITIES | KA TURE WHAIWHAKAARO, ME KĀ TAKOHAKA WAETURE**

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63 The QLDC Backflow Policy involves enforcing the legislative requirements of the Health Act and the HDWA.

- 64 Health Act: The Health Act requires that adequate water supplies are provided to communities. Any buildings being built, sold or let must have an adequate and convenient supply of wholesome water. The Act also provides for Local Council “To make bylaws under and for the purposes of this Act or any other Act authorising the making of bylaws for the protection of public health”, refer section 23. The Act further states that it is an offence to pollute a public drinking water supply under Section 60 and can incur a fine.
- 65 HDWA Act: The Act requires that a backflow preventer is fitted in situations where a network supplier considers a need to protect the distribution system from risks of pollution caused by water and other substances on properties connected to the system. In addition, the Act requires the Network Supplier to ensure that the backflow prevention devices are tested at least once a year. The Act allows for the Network Supplier to recover the costs associated with conducting the annual testing from the property owner.
- 66 The QLDC Backflow Policy is written to conform with these legislative requirements, so is consistent. Therefore, no legal advice has been sought when writing this policy.

**LOCAL GOVERNMENT ACT 2002 PURPOSE PROVISIONS | TE WHAKATURETURE 2002 O TE KĀWANATAKA Ā-KĀIKA**

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67 Section 10 of the Local Government Act 2002 states the purpose of local government is (a) to enable democratic local decision-making and action by, and on behalf of, communities; and (b) to promote the social, economic, environmental, and cultural well-being of communities in the present and for the future. The QLDC Backflow Policy will reduce the risk of future backflow events across the network, positively contributing to the well-being of the community. As such, the recommendation in this report is appropriate and within the ambit of Section 10 of the Act;

68 The recommended option:

- Can be implemented through current funding under the Ten Year Plan and Annual Plan;
- Is consistent with the Council's plans and policies; and
- Would not alter significantly the intended level of service provision for any significant activity undertaken by or on behalf of the Council, or transfer the ownership or control of a strategic asset to or from the Council.

**ATTACHMENTS | NGĀ TĀPIRIHANGA**

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A	QLDC Backflow Policy, including Risk Assessment Decision Tree as Appendix 1
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