

**QLDC Council  
23 March 2018****Report for Agenda Item 8****Department: Property & Infrastructure****Disinfection of network drinking water supplies to protect public health****Purpose**

- 1 The purpose of this report is to update the Council on the Water Safety Plan review process by which all network drinking water supplies under the ownership of Queenstown Lakes District Council are to be upgraded to address public health risks.
- 2 These Water Safety Plans, which are approved by Public Health South, include continuous disinfection (using chlorination) of all Council owned network water supplies
- 3 The approval of the Water Safety Plans by Public Health South, supports the demonstration by Queenstown Lakes District Council of compliance with legislated public health requirements.
- 4 This requirement does not preclude alternate methods of disinfection in the future should they be proven at least as effective and cost effective as using chlorination.

**Executive Summary**

- 5 Queenstown Lakes District Council owns and operates public network water supplies.
- 6 The operation of these water supplies is required to protect public health through demonstrated compliance with the Health (Drinking Water) Amendment Act 2007 and the Drinking Water Standards of New Zealand 2005 (revised 2008).
- 7 Currently only the Lake Hayes / Lake Hayes Estate water supply complies with the treatment requirements of this legislation.
- 8 The Queenstown and Wanaka water supplies are not able to demonstrate compliance; however, they do have a permanent barrier to network bacterial contamination through permanent network disinfection by chlorination since the 1980's.
- 9 The small scheme supplies of Arrowtown, Arthurs Point, Glendhu Bay Glenorchy, Hawea, Luggate and Wanaka Airport do not comply with the legislated requirements.
- 10 Kingston, Cardrona, Gibbston and Jacks Point are currently not on Council water supply

- 11 However, since December 2017 all of these supplies have had precautionary disinfection by chlorination installed and operational.
- 12 Monitoring of the water quality within these network supplies has previously recorded a number of bacterial contamination events, and in particular, sustained high numbers of indicator contamination recordings in the Arrowtown and Hawea water supplies. Glenorchy had a one-off bacterial contamination event in December 2017.
- 13 Queenstown Lakes District Council has ongoing dialogue with our communities concerning water over an extended period, and acknowledge their views as well as our need to ensure safe water.
- 14 Following these discussions with the community, water supply experts, representatives from the Ministry of Health and other Councils throughout the country this paper recommends a step change to reduce the current risks to public health associated with the current operation of these Queenstown Lakes District Council water supplies.
- 15 Specifically, to protect these water supplies from the risk bacterial contamination and protect the health of the community and visitors who are supplied water by these networks, permanent disinfection by chlorination is a new requirement under our Public Health South approved Water Safety Plans for all small schemes.
- 16 We have also been informed by Public Health South that any transgression with a requirement with an approved Water Safety Plan will be escalated inside the Ministry of Health for resolution. Locally based Drinking Water Assessors are no longer have delegated authority to resolve transgressions.
- 17 Disinfection of network water supplies does not completely fulfil the requirements of demonstrating compliance with the Drinking Water Standards, however, it is one of the accepted components of progressing towards the demonstration of compliance, as set out in section 4.4 of the Standards.

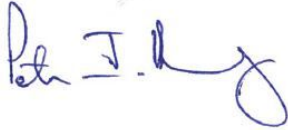
## Recommendation

### 18 That Council:

1. **Note** the contents of this report and in particular the legislated requirement under the Health (Drinking Water) Amendment Act 2007 that Queenstown Lakes District Council protect the health and safety of people and communities by promoting adequate supplies of safe and wholesome drinking water from all drinking-water supplies.
2. **Note** the requirement for continuous disinfection, by treatment with chlorination, of all network water supplies for which it has ownership.
3. **Direct** the Chief Executive that any future Queenstown Lakes District Council owned network water supply must not be accepted or vested to the Council without it being able to demonstrate it does meet the requirements of the Health (Drinking Water) Amendment Act 2007.

4. **Note** the proposed 2018 Long Term Plan assumption that all Queenstown Lakes District Council water supplies will be progressively upgraded to fully comply with the Drinking Water Standards by the year 2028.

Prepared by:



Peter Hansby  
GM, Property and Infrastructure  
15 March 2018

Reviewed and Authorised by:



Mike Theelen  
Chief Executive  
15 March 2018

## Background

- 19 The availability of safe drinking-water for all New Zealanders, irrespective of where they live, is a fundamental requirement for public health and community wellbeing.
- 20 Section 69A(1) of Part 2A of the Health (Drinking Water) Amendment Act 2007 sets out that all drinking-water supplies must protect the health and safety of people and communities by promoting adequate supplies of safe and wholesome drinking.
- 21 Moreover, Section 69A (2)(c) imposes a range of duties on drinking-water suppliers (including Queenstown Lakes District Council (QLDC)), to:
- a. monitor drinking water; and
  - b. take all practicable steps to comply with the drinking-water standards; and
  - c. implement risk management plans.
- 22 The Drinking Water Standards for New Zealand 2005 (revised in 2008) (DWS08) define the minimum standards for drinking-water quality in New Zealand.
- 23 The requirement to demonstrate compliance with the DWS08 came into force on:
- a. 1 July 2012, for the Queenstown and Wanaka network water supplies, and
  - b. 1 July 2014, for all other QLDC owned network drinking water supplies.
- 24 QLDC is currently only able to demonstrate that it complies with the DWS08 at its Lake Hayes/Lake Hayes Estate water supply.
- 25 Following a significant public health event linked to the Queenstown water supply over a decade ago, continuous disinfection of the Queenstown and Wanaka lake-sourced water supplies by chlorination was implemented.
- 26 A similar event at Central Otago District Council in the early 1990s, resulted in a decision in 1993 for continuous disinfection of all CODC network water supplies by chlorination.
- 27 There have been contamination events, resulting in 'boil water' notices at Arrowtown and Hawea in recent years. Glenorchy had a one-off bacterial contamination event in December 2017. Dating back to 2013, these events were

due to contamination in the water network and at water storage reservoirs (which is after the water has already been treated with UV disinfection systems).

28 In 2017, QLDC sought expert advice on the consequences of not meeting legal obligations under relevant Acts. In short, failure to implement measures could lead to:

- a. criminal liability (primarily fines) under the various Acts,
- b. being subject of various enforcement powers (with the potential for prosecution), and
- c. liability for negligence, breach of statutory duty, or judicial review.

29 As required under the Health Act, all of QLDCs network water supplies have been registered with the Ministry of Health. The Chief Executive, as the head of QLDCs operations, is recorded on the Ministry of Health register as the 'person responsible' for all the QLDC owned water supplies.

## **Comment**

### ***Recent Events and Understanding***

30 Following the 2016 contamination event of public water supplies in Havelock North, the Medical Officer of Health (Southern District Health Board) wrote to QLDC in September 2016 highlighting that "measures previously not considered necessary, such as chlorination, may need to be reconsidered". Refer Attachment A.

31 In early 2017, as part of reviewing its Water Safety Plans for six of its water supplies, QLDC engaged Beca Consultants to review and confirm the adequacy of all of QLDCs water supply bores.

32 This report published in May 2017, confirmed that currently none of the QLDC water supply bores were sufficiently designed, built, or operated as to provide a secure (safe) water supply. In every case, there is the potential of contamination to enter the water before the water is put into supply.

33 To support local authorities in understanding their legislated obligations for the provision of safe drinking water, Water New Zealand arranged for Jim Graham of Opus (formally of the Ministry of Health, who helped develop the DWS08) to present to groups of local authorities on the requirements of providing safe water.

34 QLDC arranged a follow up session where Jim returned to Queenstown to specifically present to the QLDC Infrastructure Committee in May 2017.

35 In December 2017 Attorney-General David Parker has released the second stage of the Inquiry into Havelock North's drinking water contamination and stated:

36 "The report highlights the quality of drinking water in New Zealand is often inadequate, and that regulation and enforcement have been poor. We must do better."

37 "There is nothing in law preventing councils immediately moving to improve the treatment of water."

38 The report includes numerous recommendations which some key of them relevant for QLDC:

- Removal of secure groundwater status
- Mandatory multi-barrier treatment of all public water supplies
- Includes requirement for a residual disinfectant in the network
- Establishment of an independent water regulator
- Collaboration and dedicated water suppliers
- Office of the Attorney-General (OAG) oversees Implementation of Inquiry Recommendations

39 These recommendations have yet to be agreed or implemented. One of the challenges we have faced is that we shouldn't do anything until then. However not withstanding that we understand that the Minister has yet to receive advice from officials the direction and the need to meet DWS already exists and we are in a position to take immediate steps to improve if not resolve our drinking water compliance.

#### ***Letter from the Minister***

40 QLDC received a letter from the Minister of Local Government, Hon. Anne Tolley, on 12 May in regards to the Havelock North contamination event. Refer Attachment B.

41 In this letter, the Minister stated that "it is vitally important that public drinking-water suppliers embrace high standards of care".

42 The Minister also urged "all local authorities to review their current practices" in light of the findings of Stage 1 of the Havelock North Inquiry, "and where necessary make any required changes".

#### ***The QLDC Situation***

43 New Zealand's drinking water legislation requires, amongst other things, that water supply owners assess, document and identify responses/investment to the potential for contamination of water supplies at the water source, through the treatment processes and within the distribution network.

44 The QLDC water supply bores are installed in below ground chambers. The Havelock North bores were similarly installed in below ground chambers and this was a matter identified by the Inquiry as significantly contributing to contamination risks.

45 Implementing source and treatment barriers for protection (i.e. filtration and UV disinfection processes) does not prevent contamination downstream of these treatment processes, throughout the water network.

46 QLDC has known multiple sources of distribution network contamination risks. These include:

- a. illegal connections to water networks,

- b. inappropriate disinfection of new connections,
- c. third party damage to networks,
- d. animals and other contamination entering water storage reservoirs,
- e. contaminated backflow from customers into the supply network,
- f. depressurising the supply with extreme demand (i.e. firefighting),
- g. biofilms growing within aged pipes,
- h. septic tanks and wastewater pipe breaks near water sources and water pipes, and
- i. water pipeline deterioration and breakages.

47 There are programmes underway to better understand these sources of contamination, however, because of their nature, it is all but impossible to eliminate these contamination risks totally from a water supply network.

48 Following QLDCs decision to turn off continuous disinfection at the end of the summer peak tourist season in April 2017, the Medical Officer of Health wrote to QLDC in May 2017 highlighting that “there is an identified risk to these supplies’ and that “chlorine has been shown to be an effective barrier” to bacterial contamination in the water supply network”. Refer Attachment C.

49 This letter also stated that in their view “it would be prudent to give consideration to permanent chlorination of these supplies . . . until such time that the risk/source of contamination can be clearly shown to have been removed.”

50 As such, it is recommended that to protect public health, that QLDC implements continuous disinfection by chlorination at its non-disinfected water supplies. This approach to network disinfection would be in accordance with the DWS08; section 4.4, Compliance criteria for drinking-water in the distribution system.

51 For the avoidance of doubt, compliance solely with section 4.4 of the DWS08 does not constitute full compliance with the DWS08 – it is only one component of the demonstration of compliance. There are other components which are proposed to be addressed progressively over the term of the 2018 Long Term Plan.

52 Communities like Queenstown, Wanaka, Albertown, Lake Hayes, Lake Hayes Estate and Shotover Country are chlorinated for quite some time.

53 We acknowledge, appreciate and recognise the concerns raised by the smaller communities like Glenorchy, Arthurs Point, Arrowtown, Hawea and Luggate and how their unique circumstances can be addressed to avoid chlorination.

54 To mitigate the risk, like European countries who have non-chlorinated water supplies, we would need to get a better understating of our network performance, this will take time and would be very expensive.

## **Options**

55 This report identifies and assesses the following reasonably practicable options for assessing the matter as required by section 77 of the Local Government Act 2002:

56 Option 1 Status Quo – Town water supply distribution networks are not disinfected.

Advantages:

57 No investment is required.

Disadvantages:

58 Ignores the learnings from the Havelock North water contamination event and the Stage 1 + 2 Inquiry findings and recommendations.

59 Ignores written advice from the Minister of Local Government and the Medical Officer of Health.

60 Potential loss of community support for QLDC not taking all practical steps to protect community water supplies, as required by legislation.

61 Higher risk of water contamination event occurring on a QLDC water supply.

62 Higher risk of public health event and community illness linked to contaminated QLDC water supplies.

63 Severe legal risk and penalties if proven QLDC failed to take all practicable steps to provide water that is safe to drink and protect public health.

64 Option 2 Continuous disinfection (using chlorination) of all QLDC non-chlorinated drinking water supplies. (Recommended Option)

Advantages:

65 Chlorination is a proven, effective, reliable, easily implemented and cost effective method of disinfection used around New Zealand and the world.

66 Unlike UV disinfection, disinfection by chlorination continues to reside in the water supply, making it available to continue to protect the water in the network against contamination through to the point of customer supply.

67 Any residual levels of chlorination in water disappear naturally with exposure to air and there are simple, low cost choices households can make to remove any remaining chlorine entering the home, should they choose.

68 Public health is protected for visitors to our district, many from countries who are used to safe, council supplied, drinking water.

69 Implementation of continuous network disinfection is supported by the Medical Officer of Health (Southern District Health Board) as it has been proven to be an effective barrier to water supply contamination within the district and it is a positive step towards QLDC achieving compliance with the DWS08.

### Disadvantages:

- 70 Increased costs for water operations activities, although this investment is well within QLDCs threshold of affordability as set out in the Health Act as “all practicable steps’.
- 71 Potential loss of some community support following the introduction of disinfection by chlorination.
- 72 This report recommends **Option 2** for addressing the matter because it best fulfils QLDCs legislative requirements in the provision of drinking water that is safe to drink and protecting public health.
- 73 In addition, there is no legally defensible argument that implementing continuous disinfection of QLDC water supplies is not affordable.

### ***Significance and Engagement***

- 74 This matter is of high significance, as determined by reference to the Council’s Significance and Engagement Policy because:
  - a. the risk to public health
  - b. the level of national and community interest in safe drinking water
  - c. the findings of the Havelock North Stage 1 Inquiry
  - d. the recommendations of the Havelock North Stage 2 Inquiry

### ***Risk***

- 75 This matter relates to the strategic risk SR1 Current and future development needs of the community (including built and natural environmental protection) and strategic risk SR3 Management Practise - working within legislation, as documented in the Council’s risk register.
- 76 These risks are classed as very high. This matter relates to these risks because the rapidly changing demographics with the district require improved service levels. Most notably, the increase in populations of younger children and older adults, who are most susceptible to illness due to bacterial contamination in drinking water supplies.
- 77 Queenstown Lakes District was in 2017 the fifth highest council in terms of the number of building consents issued which highlights the activity in the district and the risk posed by the network being constantly destabilised by activities.
- 78 In addition, QLDC’s management practices of its public water supplies (with the exception of Lake Hayes / Lake Hayes Estate) does not comply with the requirements of the Health (Drinking Water) Amendment Act 2007, which is the primary legislation for the operation of safe public water supplies.
- 79 The recommended option considered above mitigates the risk by: Treating the risk - putting measures in place which directly impact the risk.



## **Financial Implications**

- 80 The Annual Plan 2017-18 had capital funding of \$0.5M allocated for the installation of continuous chlorination disinfection facilities at each water supply bore. Since December 2017 all QLDC supplies are set up and water is chlorinated.
- 81 Expenditure to operate these facilities is available in the Long Term Plan.
- 82 The capital cost required to address full Drinking Water Standards (DWS) is allowed for in the draft Ten Year Plan (TYP)
- 83 This would support affordability for smaller communities where infrastructure investments of this nature, which benefit the broader district, are currently funded by that community on a scheme basis.
- 84 Other councils such as Central Otago District Council and Auckland Council, have already moved to district wide rating for these types of broader district-wide benefit investments.

## **Council Policies, Strategies and Bylaws**

- 85 The following Council policies, strategies and bylaws were considered:
- a. Water Supply Bylaw 2008
  - b. Infrastructure Strategy 2015-2045
  - c. Water and Sewerage Schemes – Small Communities, 2004, which states that Council insists that national standards now, and in future, will be satisfied.
  - d. Corporate Risk Framework and Mitigations Tables – specifically Operational Risks OR030b Pollution or degradation of the environment affecting the supply of safe drinking water.
  - e. Water Safety Plans (Approved by Ministry of Health representatives) – specifically that barriers to ‘prevent recontamination after treatment’ at Hawea are ‘absent’. Key risks were identified as a lack of: Hygienic pipe repair procedures, distribution system flow and pressure modelling being incomplete, water carriers not registered or checked for backflow protection, and backflow prevention is not consistent and checking of installed devices is not assured under current procedures.
- 86 The recommended option is consistent with the principles set out in the named policies and plans.
- 87 This matter is included in the 10-Year Plan/Annual Plan.

## **Local Government Act 2002 Purpose Provisions**

- 88 The recommended option:
- Will help meet the current and future needs of communities for good-quality local infrastructure, local public services, and performance of regulatory functions in a way that is most cost-effective for households and businesses

by reducing the risks of a potential public health event caused by contaminated public water supplies;

- Can be implemented through current funding under the 10-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.

### **Consultation: Community Views and Preferences**

- 89 The persons who are affected by or interested in this matter are the residents and ratepayers of the district and the surrounding districts, national and international visitors to the district, and local businesses that prepare food using QLDC supplied water.
- 90 Council is generally not required to consult on matters where decisions relate to complying with the law or protecting public health.
- 91 However, public forums were provided to present the matters to the community and provide the community the opportunity to offer alternative solutions that would provide the same or better level of public health protection.
- 92 The Council has used multiple methods to engage with the community on this matter. Specifically through the use of: social media, the QLDC website and more formally at community meetings held in April 2017 and February/March 2018.
- 93 QLDC was represented at these meetings by its: Chief Engineer, Ulrich Glasner the General Manager Property & Infrastructure, Peter Hansby, and a number of Elected Members and Community Board Members.
- 94 There were no concerns raised about the general need for QLDC to provide drinking water that was safe to drink.
- 95 The community members expressed some concerns regarding the use of chlorination to disinfect the water supplies. The specific concerns raised were in relation to potential for taste or smell issues and personal skin sensitivities. A question was also raised about the potential links to increased skin cancer as a result of disinfection by chlorination.
- 96 Further information on this topic and what the general customer could do can be found on our website at <https://www.qldc.govt.nz/services/water-services/chlorination/>
- 97 The matters raised by the community have been discussed with public water supply experts, peers and representatives of the Ministry of Health.
- 98 Giving consideration of the QLDC situation, and the effectiveness of disinfection by chlorination in the district, around other parts of New Zealand, and the world, all parties support the proposed disinfection of the network water supplies from bacterial contamination events through the continuous use of chlorination.

- 99 This would bring QLDCs town water supplies into alignment with the larger towns in the central lakes area including, Wanaka, Queenstown, Lake Hayes Estate, Cromwell, Clyde and Alexandra.

### **Legal Considerations and Statutory Responsibilities**

- 100 Consideration has been given to the flowing legislative and statutory responsibilities:
- a. Local Government Act 2002
  - b. Crimes Act 1961
  - c. Resource Management Act 1991
  - d. Health (Drinking Water) Amendment Act 2007
  - e. Drinking Water Standards of New Zealand 2005/2008
  - f. Department of Internal Affairs, Non-financial performance measures: provision that water is safe to drink (2013)
  - g. Health and Safety at Work Act 2015
- 101 By July 2014, all QLDC owned network drinking water supplies had to comply with the Health (Drinking Water) Amendment Act 2007 and the Drinking Water Standards of New Zealand 2008 for the provision of safe public water supplies.
- 102 QLDC is not currently able to demonstrate that it complies with the DWS08 for any of its water supplies, with the exception of Lake Hayes / Lake Hayes Estate.
- 103 The recommendation of this paper progressively moves QLDC towards compliance with this legislated requirements, starting with addressing the highest risk to contamination events – those occurring in the network.
- 104 Further, QLDCs 2018 Long Term Plan (currently in development) sets out a plan for full compliance with drinking water obligations by not later than the year 2028.

### **Attachments**

- A Letter from Medical Health Officer, Public Health South, September 2016
- B Letter from Minister of Local Government, May 2017
- C Letter from Medical Health Officer, Public Health South, May 2017 Re: Chlorination of Arrowtown and Lake Hawea Water Supplies

**Public Health South**

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5 September 2016

Mike Theelan  
Chief Executive  
Queenstown Lakes District Council  
Private Bag 50072  
Queenstown 9348

QLDC  
07 SEP 2016  
QUEENSTOWN

Dear Mr Theelan

As a water supplier you will have taken a keen interest in unfolding events in Havelock North. I am writing to encourage you, if you have not already done so, to review the water safety plans for the supplies for which you are responsible.

The material risks to the water supply will not have changed as a consequence of recent events, although it will be prudent to check that these are comprehensively identified. However, the political and public tolerance of failures to ensure safe drinking water has clearly altered.

This may mean that improvement measures identified in water safety plans but not yet implemented may need to be accelerated. It may also mean that measures previously not considered necessary, such as chlorination, may need to be reconsidered.

I would also remind you that where operational staff identify drinking water transgressions then these should be reported to the appropriate regulatory staff. Your response to my letter of 4 March 2016 on microbial transgressions was very positive in this regard.

The key message from the Havelock North situation is that drinking water safety is a joint endeavour between suppliers and regulatory agencies and we remain committed to that way of working. Please get in touch with our specialist drinking water assessors if you require technical support in relation to your water safety plans.

With best wishes

Dr Keith Reid  
**Medical Officer of Health**  
*Designated by Director General of Health under Section 7 (A) of the Health Act 1956*



## Office of Hon Anne Tolley

MP for East Coast  
Minister for Social Development  
Minister for Children  
Minister of Local Government

12 May 2017

Mike Theelen  
Queenstown-Lakes District Council  
Private Bag 50072  
QUEENSTOWN 9348

QLDC  
10 MAY 2017  
QUEENSTOWN

Dear Mr Theelen

I wanted to take the opportunity to write to you as you will be aware of the release of the Stage One report of the Government Inquiry into Havelock North Drinking-Water. I welcome this report and thank the Inquiry Panel for its thorough investigation.

It is vitally important that public drinking-water suppliers embrace high standards of care. The Stage One report has given us many helpful insights and points to note.

Although this stage was focused on the Havelock North area, I am urging all local authorities nation-wide to review their current practices in light of the report's findings, both at an operational and strategic level and where necessary make any required changes.

One of the identified failings was centred around organisational practice, behaviour and regular communication between all stakeholders. Examples of good practice identified in the report include:

- collaboration between territorial authorities, regional councils and drinking water assessors;
- regular planned inspection and maintenance of key drinking water assets;
- good governance oversight of water supply safety issues; and
- up to date emergency response plans.

As I know you are, I am committed to local government providing excellent services for our communities. I will be paying close attention to Stage Two, which will focus on the wider systems, lessons to be learned and provide recommendations for the future. That stage is due to be completed by 8 December 2017.

Yours sincerely

Hon Anne Tolley  
Minister of Local Government

cc: Mayor Jim Boulton



Mike Theelen  
CEO of QLDC  
Private Bag 50072  
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Dear Mike Theelen,

**RE: Chlorination of Arrowtown and Lake Hawea Water Supplies**

On 1<sup>st</sup> September 2016 a letter from Public Health South requested all councils to review compliance of water supplies and adequacy of Water Safety Plans. It is heartening to see QLDC taking action in relation to this. Two supplies, Arrowtown and Hawea, have been chlorinated on an 'emergency' basis over summer due to their history of *E. coli* transgressions. We support and recommend the use of chlorination with an appropriate residual FAC as a mechanism to counter microbiological contamination. This support extends to acknowledging that while this approach has been met with consumer resistance, the legal obligations on the supplier are paramount in these situations.

However, I understand that as of the 31<sup>st</sup> of March this chlorination has been stopped. We have been made aware that extra daily sampling done in the reticulation of both these supplies since the 1<sup>st</sup> of April has led to a significant number of positive results for total coliforms in both supplies, indicating ongoing microbiological contamination. The presence of microbiological contamination in the system signals a failure of system integrity at some point, or potentially, multiple points. This may include contamination close to, or at, the source, failure of UV treatment, or backflow contamination. An investigation is required to understand the failure(s) which have led to this contamination and the remediation necessary to prevent a recurrence. The presence of coliforms in the supply indicates that faecal coliforms such as *E. coli* could also enter the system. This clearly indicates that these supplies have a high potential risk for contamination and effective treatment needs to be in place permanently as well as finding the source of contamination.

The effectiveness of chlorination to counter microbiological contamination and render it less detectable by conventional sampling means that additional diligence in maintaining the integrity and functioning of the system is required. This is because unless the source of the contamination is removed from the system the risk remains and any subsequent failure of chlorination will expose the population to infective risk.

Under 69U of Health (Drinking Water) Amendment Act 2007 it is a legal requirement for the council as the owner of these supplies to undertake all practicable steps to contribute to the protection of the drinking water supply. In my view there is an identified risk to these supplies. Chlorine has been shown to be an effective barrier and ensures that the supplies will be complying with the Drinking Water Standards for New Zealand 2005 (revised 2008). The UV plants already in place will ensure they meet the protozoal compliance with the standards as well. Chlorination equipment remains in place in respect of both supplies. In my view it would be prudent to give consideration to permanent chlorination of these supplies. In the interim chlorination is especially important until such time that the risk/source of contamination can be clearly shown to have been removed.

Regards,

A handwritten signature in blue ink, appearing to read "K. Reid", is written over a faint, rectangular stamp.

Keith Reid  
Medical Officer of Health  
Southern District Health Board