

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER Variation 6 to the Proposed Canterbury
Natural Resources Regional Plan

**STATEMENT OF EVIDENCE OF Dr Ramon Pink
on Behalf of Canterbury District Health Board**

1. My full name is Ramon Lawrence Pink residing in Christchurch. I am a vocationally registered public health physician and have been practising public health for more than 15 years. I am designated by the Director-General of Health as a Medical Officer of Health in Canterbury, and I am employed as a public health physician by the Canterbury District health Board (CDHB).
2. I represent the CDHB as one of their Public Health Physicians. I am not giving evidence independently as a Medical Officer of Health nor am I representing the Ministry of Health.

Qualifications and Experience

3. My relevant qualifications are BHB (Bachelor of Human Biology), BChB (Bachelor of Medicine, Bachelor of Surgery) Medical degree, MPH (Master of Public Health), FAPHM (Fellow of the Australasian College of Public Health Medicine), and FNZCPHM (Fellow of the New Zealand College of Public Health Medicine). I am employed as a Medical Officer of Health and Public Health Physician by the Community and Public Health Division of CDHB and in this capacity I provide professional advice and leadership to the environmental health team. I am also designated as a Medical Officer of Health for Canterbury by the Director General of Health, a role which carries broad ranging legislative responsibilities, primarily to promote and maintain the public's health.

Ambit of My Evidence

4. In my evidence, I will provide comment to support variation 6 to the Proposed Natural Resources Regional Plan and in particular the issues regarding protection of the Groundwater resources which form the source of the Christchurch City Water Supply. Supporting evidence will be given by ESR scientist Dr Chris Nokes.

INTRODUCTION

5. Under the New Zealand Public Health and Disability Act (2000) every District Health Board has the responsibility to:
 - “improve, promote and protect the health of people and communities” [s22 (a)].
 - “Promote the reduction of adverse social and environmental effects on the health of people and communities” [s23 (1) (h)].
6. In terms of that Act, the CDHB supports variation 6 to the Proposed Natural Resources Regional plan (pNRRP). The CDHB believes that the development of the

pNRRP is essential to complement other sustainable development initiatives covering environmental, social and economic components. Plans can quickly become outdated due to changes in knowledge and circumstance and the pNRRP needs to be sufficiently flexible to avoid unintended consequences.

7. The pNRRP establishes objectives, policies and methods for sustainably managing the region's high quality water resources. One of the main objectives is the protection of drinking water sources used for communities in Canterbury.
8. The advent of the Health Drinking Water Amendment Act 2007 (HDWA) reinforces the concepts of multiple barrier approaches, which will be discussed in detail by Dr Nokes and in particular the protection of drinking water sources. The Act complements the provisions of The National Environmental Standard on Drinking Water Sources (NES). It is no longer acceptable to assume that treatment of surface and groundwater prior to supply as drinking water will necessarily provide an adequate barrier to protect the health of people in communities.
9. Accepted best practice now requires a multiple-barrier approach which includes the important barrier of water source protection. The CDHB believes that Variation 6 will help to preserve the quality of natural water sources as the drinking water source for Christchurch.

Potential Human costs of contaminating Christchurch's Water

10. As a Medical Officer of Health, I am notified of a range of enteric diseases by GPs/hospitals and laboratories when patients present and samples are taken. It is well recognised that those I am notified of are only the "tip of the iceberg" – often people will not go to their doctor.
11. Contaminated water can present a serious illness to individuals especially the more susceptible such as children, the elderly, anyone with a compromised immune system as well as having a major impact on a community. We have had recent examples here in Canterbury – Springston 2008 and Dunsandel 2009/10. Contaminated water has the potential to significantly impact on our community's health.

The Christchurch Aquifer Recharge Zone

12. In New Zealand, many drinking water supplies are from surface catchments and require treatment to control quality parameters including colour, sediment, odour and taste and to provide protection from bacteria. A majority of the drinking water in the Canterbury area comes from ground water. Much of this water is used for public drinking water supplies, is of very high quality and is not treated.

13. Environment Canterbury plans describe two groundwater recharge zones for the Coastal Confined Gravel Aquifer System which is the source of Christchurch city's water supply. Groundwater in Zone 1 lies close to the ground surface.
14. This aquifer is unconfined with little or no impermeable material overlaying it, so rainfall soaks quickly down into the aquifer, and there is little natural protection to prevent contaminants entering the groundwater. Zone 2 of the Christchurch Groundwater Recharge consists of land covered largely by urban Christchurch. In this area there are layers of fine-grained sediments – clays and sands alternate with layers of water bearing gravels (aquifers).
15. The aquifers are also under pressure, the deeper aquifers having higher pressure than the shallower ones. This creates a natural upwards or artesian pressure which in combination with the fine sediments provides a high level of protection against contaminants moving downwards. It is however susceptible to land use activities over zone 1.

The Canterbury Water Management Strategy

16. The CDHB believes there can be no compromises in the area of catchment protection and supports the principle outlined in the Strategy:

“Where Canterbury’s drinking water is currently untreated and safe for drinking, it is maintained at that high standard.”

Under Drinking Water targets, outlined in the Water Management Strategy from 2010 *“in communities that currently have access to untreated and safe drinking water, the source water quality must remain high enough to meet DWSNZ2005/08 without treatment” and “that there are no activities in the drinking water catchment that reduce access to sufficient quantities of drinking water supplies”.*

Matters Relating to the Drinking Water Standards

17. One of the main tools that the Ministry of Health uses to assess whether a drinking water supply is safe is the Drinking Water Standards for New Zealand 2005 (revised 2008). These are based on the World Health Organisation Guidelines with New Zealand specific changes, as appropriate.
18. In the DWS2005/08 the term ‘security’ in relation to ground water sources has a specific meaning. Groundwater is considered to be secure when it can be demonstrated that contamination by pathogenic organisms is unlikely because the

groundwater is both not directly affect by surface or climate influences and abstracted from a bore head that provides satisfactory sanitary protection.

19. Groundwater that has been assessed as secure under the DWSNZ2005/08 does not require any further treatment to comply with the section of the standards regarding protozoa otherwise treatment options such as filtration and/ or UV would be required to obtain compliance with DWSNZ2005.

The Health Drinking Water Amendment Act 2007 (HDWAA)

20. The Health Act 1956 as amended by the Health Drinking Water Amendment Act 2007 sets out the requirements for the management of community drinking water supplies. Suppliers are required to have Public Health Risk Management Plans which have been approved by their Drinking Water Assessor.
21. The HDWAA makes it clear¹ the supplier must take reasonable steps to contribute to the protection from contamination of each drinking water source from contamination including making submissions on draft Regional and District plans.
22. The CDHB believes that effective planning controls are required in the Recharge Zone to reduce the risk of groundwater contamination from land use activities and discharges and reduces the expense of having to reconsider issues for every consent application.
23. Adequate planning controls, will be considered by the CDHB Drinking Water Assessors to be part of the Public Health Risk Management Plan [for the purposes of the Drinking Water Standards for NZ 2005(revised 2008) (DWS2005/08)] of any supply utilising the groundwater sourced from the Recharge Zone.
24. The CDHB views the proposed rule changes under Variation 6 as being compatible with, and part of, a Public Health Risk Management approach. It considers there is a clear link between the pNRRP, and the rules proposed by Variation 6 providing further protection for the aquifer recharge zone and a Public Health Risk Management Plan required for the purposes of the DWS2005/08.
25. Both the NES (described in detail by Dr Nokes) and the HDWAA are complimentary and contribute to the multi-barrier approach and maintenance of the first barrier of protecting the catchment. The HDWAA places a duty on all water suppliers to take reasonable steps to contribute to protection of sources of drinking water.

¹ Section 69U (4) Health Drinking Water Amendment Act 2007

The Multiple-Barrier Approach

26. Relying on treatment alone is not sufficient to manage the risk posed by drinking-water contamination to public health. A number of major outbreaks of water-borne disease in developed countries resulting in serious illness and death have shown that risks to health need to be reduced at every step of the way, not just in the treatment plant and distribution network, but by reducing the amount of contamination that enters water sources in the first place. This is known as the multi-barrier approach and is recommended by the World Health Organisation as a key principle in preventing or reducing drinking-water contamination². It is discussed in more detail by Dr Nokes.
27. Safety is increased if multiple barriers are in place. The preferred strategy is a risk management approach that places the emphasis on preventing or reducing the entry of contaminants into the water at each of the steps rather than reliance on solely on treatment processes for removal of contaminants.

Vulnerability of the City Supply

28. The vulnerability of Christchurch's water supply to contamination has already been recognised³. Evidence to the Central Plains Hearing suggested that land use is already impacting on Christchurch water supply.⁴
29. Grading of a public water supply provides a statement of the extent to which the water supply achieves and can ensure a consistently safe and wholesome product. This is determined by looking at how the supply complies with the Drinking Water Standards for New Zealand 2005/08 and whether there are adequate barriers in place to minimise risks to public health.
30. Several of the wells in the North West of Christchurch are not considered to be 'secure' (a specific term in the DWSNZ05/08 which includes demonstration that less than 0.005percent of the water has been present in the aquifer for over a year) and therefore because of the vulnerability to contamination the supply was awarded a 'D' for its source and treatment.
31. This is now registered and considered a separate supply to the rest of Christchurch. Christchurch is intending to retire some of the non-secure wells, deepen others and introduce UV disinfection to other wells to control the risk of bacterial contamination.

² (WHO, 2006)

³ Evidence of Carl Hanson Paras 12, - 25, and 53 - 55

⁴ Evidence of Paul White to Central Plains Hearing Paras 9.1 – 9.3 13/10/09

CONCLUSION

- 32.** The CDHB believes that Variation 6 as proposed will provide an effective method to ensure consistency in decision making, over time and over different councils. It provides for the maintenance of the quality of the environment and protects the amenity value which comes from living in a large city with untreated water.
- 33.** The alternative of deciding on individual consents would not give the certainty required to protect CCC groundwater. Given that there are alternative areas for development in the future; putting Christchurch's drinking water source at risk is not warranted. We wholeheartedly support variation 6, pNRRP.