

IN THE MATTER OF the Resource Management Act
1991 and a Notice of Requirement
to Selwyn District Council and
Applications to Canterbury
Regional Council for resource
consents.

BY Central Plains Water Trust
AND Central Plains Water Ltd

**STATEMENT OF EVIDENCE BY EOGHAN MICHAEL O'NEILL
ON BEHALF OF THE CHRISTCHURCH CITY COUNCIL**

1. My name is Eoghan O'Neill and I am a Water Engineer employed by the Christchurch City Council, City Water and Waste Unit. I hold a Bachelor of Engineering Degree (Hons) and a Master of Engineering Science Degree from University College Dublin and have seven years experience in water and wastewater planning for developments, the majority of which has been with Dublin City Council in Ireland. I have worked as Planning Engineer – Growth for Christchurch City Council, City Water and Waste Unit, since January 2005.

Scope of Evidence

2. Christchurch City Council supplies water to more than 300,000 domestic users and approximately 11,000 commercial customers. All of the water supplied is pumped from the Christchurch-West Melton aquifer system and is delivered directly into the city's reticulation. This supply of untreated, high quality water to such a large customer base is unique in New Zealand terms and extremely rare in international terms. As a result of this, the cost of supplying water to Christchurch is extremely low in comparison to other New Zealand urban centres. In these centres, the additional raw water transport and treatment costs result in a much higher cost financial input in order to supply quality water. The cost to supply water to the average Christchurch household is approximately 45 cents per day, this compares with a figure of

approximately 160 cents per day¹ in the Metrowater area of Auckland. This is based on an average usage of 1000 litres/property/day.

3. The above figures show the economic value of the Christchurch-West Melton aquifer system to the people of Christchurch. This fact is reinforced by a Ministry of Economic Development report² published in March 2004. I have attached the relevant sections of this report as Attachment A, should the commissioners wish the full report can be made available to them. This report attempted to estimate the economic value of New Zealand surface water catchments and groundwater aquifers used for domestic supply, stock watering, field watering and for industry. The report estimated that the Christchurch-West Melton aquifer was the most valuable groundwater source in New Zealand for both domestic and industrial water. Indeed, for domestic water the report estimated that it was three times more valuable than the next most valuable aquifer and in industrial terms was more than twice as valuable as the next most valuable aquifer. This highlights that the Christchurch-West Melton aquifer system is of national significance and a significant deterioration in the quality or quantity of the groundwater from the aquifer would have serious economic consequences for both Christchurch City Council and the residents of Christchurch.

4. Christchurch City Council currently has a total annual water demand of approximately 53 million cubic metres per year. It is expected that over the next twenty years the population of Christchurch will significantly increase. However, it is not expected that the rate of water abstraction from the Christchurch-West Melton aquifer system will increase directly in proportion to this. This is due to expected reductions in per household demand due to water conservation education programmes, trends towards low water use household fittings, a reduction in the average per household population and the Council's leakage reduction programme. However, even though a large increase in abstraction rates is not projected in the foreseeable future, the continued ability to use the Christchurch-West Melton aquifer system as a water source is dependant on the quality and quantity of groundwater remaining undiminished.

¹ http://www.metrowater.co.nz/yourbill/residential_charges.aspx

² http://www.med.govt.nz/templates/MultipageDocumentPage_____12535.aspx#P2093_54324

5. In 2000, Christchurch City Council engaged Opinions Market Research to carry out a comprehensive review of residents attitudes to Christchurch's water supply. I have attached the relevant sections of this report as Attachment B. Again should the commissioners wish the full report can be made available to them. It was found that almost all who took part in the qualitative research talked with great pride about the quality of the Christchurch water. Over 98% of those surveyed agreed that Christchurch's water was a precious resource and 95 % agreed that they would like to help make sure that the water quality in Christchurch did not deteriorate. Additionally, when asked about the acceptability of treating the water, 75% of those surveyed disagreed with the statement that they wouldn't mind if Christchurch's water was chlorinated. These results display a strong desire among the residents of Christchurch to maintain the current high quality of the groundwater used as the City's drinking water supply.

6. The continued expansion of the City has placed pressure on Christchurch City Council to rezone lands located over the unconfined aquifers in the west of the City. Intensification of land use in this area poses increased risks of contamination of the city's drinking water supplies. To this end, a report was recently commissioned by Christchurch City Council and written by MWH Ltd to investigate the options open to Council in the event of contamination of the city water supply in aquifers 1 and 2 through continued development over the unconfined aquifers. The loss of aquifers 1 and 2 represents a loss of some 0.914 m³/s of water supply from the City Council reticulated network or approximately 50% of current supply. Three options were outlined in the report to augment the deeper aquifer wells in the city area.

7. The three alternative water supply options were a new well field in the Lake Ellesmere region, surface takes from the Waimakariri River, and the rehabilitation of the contaminated aquifer. This final option was dismissed as being expensive and impractical. The first option at Lake Ellesmere would be the preferred Council option as this would allow Council to continue to supply untreated water to Christchurch. It should be noted that no work has been carried out, at this stage, to identify if there would be a sufficient quantity of suitable quality groundwater available at this location.

8. Should this option not be possible, the only other feasible source of supply is the taking and treating of water from the Waimakariri River. The Waimakariri River Regional Plan indicates that the allocation limit for "A" permits, is 22 m³/s of flow from the river. "A" permits only allow water to be taken when the flow in the river is greater than or equal to 41 m³/s. As the "A" permits for extraction are fully allocated, Christchurch must rely on the provision within the rules of the plan for the taking by "a municipal or rural reticulated water supply for the purpose of providing drinking and cooking water and for hygiene purposes, of up to 250 litres per day for every person served by that water supply". This alternative water supply option involves the taking of water from the Waimakariri River to a treatment plant and associated infrastructure which, in turn, would supply the existing city reticulation. This option, however, necessitates the treatment of the water to comply with drinking water standards. This is something which has been shown to be highly undesirable to the community.

9. In conclusion, Council have concerns about any activities that may lead to deterioration in the quality or quantity of the groundwater in the Christchurch-West Melton aquifer and as a result the quality of the Christchurch City drinking supply. Although the proposed activity may not cause the supply to become undrinkable, there is a strong community desire to maintain the existing very high drinking water quality enjoyed and highly valued by the residents of the city. The aquifer has been shown to have a value of national significance and any potential threat to it should be treated with great caution.

Eoghan M O'Neill

24 April 2008