

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of a Board of Inquiry appointed under s146 of the Resource Management Act 1991 to consider an application by Mighty River Power Limited for resource consents to construct, operate, and maintain a wind farm at Turitea

REBUTTAL EVIDENCE OF DAVID RUSSELL BLACK

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1. INTRODUCTION

- 1.1 My name is David Russell Black. My qualifications and relevant experience are set out in my evidence in chief. I confirm that I have prepared this rebuttal evidence in accordance with the Environment Court Code of Conduct for Expert Witnesses (July 2006).
- 1.2 I am providing this rebuttal evidence to comment on and respond to some of the primary evidence presented in respect of these applications that relate to public health matters. In particular, I will comment on the evidence of Mr Taylor presented on behalf of Palmerston North City Council and Mr Pringle as a landowner in the area.
- 1.3 Specifically, I shall address the following matters:
 - (a) **Protection of the Palmerston North Drinking Water;**
 - (b) **Adequacy of Noise Standards; and**
 - (c) **Social Impact Insofar as it Might Impact on Public Health.**

2. PALMERSTON NORTH DRINKING WATER

- 2.1 I have read the evidence of Christopher Taylor and note that this does raise significant issues which were anticipated in my evidence. In my opinion the recommendations made by Mr Taylor, in which regard he is advising and acting for Palmerston North City Council, are important. I have also reviewed all the evidence of others in this regard and discussed the matter in some detail with Mr Watson.
- 2.2 The area proposed for the Turitea Wind Farm includes the catchment area used for the Palmerston North public water supply. I understand that the water is treated via a conventional municipal water treatment plant using coagulation, flocculation, double bed filtration and chlorination. As a result, the Palmerston North City water has an "A" category rating from the Ministry of Health. In paragraph 26 of his evidence Mr Taylor has acknowledged that this rating will not be downgraded as a result of the Turitea Wind Farm development.
- 2.3 Since the first use of the Turitea for municipal water, it has been noted that the water contains a relatively high concentration of manganese. Although this is not a health issue, it is considered unacceptable to consumers, as it can cause staining. While Mr Taylor mentions this, it is my understanding that manganese removal is undertaken in the

existing process by raising the pH and then rendering the metal manganese salt insoluble, and therefore subject to filtration.

- 2.4 Mr Taylor further mentions a lack of historical water quality records for the supply to the treatment station. This seems to me to be unlikely given that such information would be required for design and operation of the station. I understand Mr Watson has sought clarification of this matter from PNCC, but is still awaiting a response to his request. I will confirm and complete my opinion when I have seen this information.
- 2.5 Mr Taylor advocates a five-year delay to the start of construction to allow monitoring. Monitoring would have been recommended practice where adequate planning and foresight by PNCC had prevailed, although Mr Taylor provides no evidence to support the five year period he suggests. In this case, despite the area having been actively marketed for tender by PNCC for some years, such monitoring only commenced in April 2009. In my view it is neither practical nor necessary to require 5 years of pre-construction monitoring now. There will be sufficient monitoring data by the time Mighty River Power begins construction.
- 2.6 This is because, in my opinion, the multiple water treatment processes in place, the existing "A" category rating (and Mr Taylor's acknowledgement that this will not be downgraded as a result of the construction and operation of the Turitea Wind Farm), and the commencement of monitoring, (so long as careful attention is given to ongoing monitoring both prior to and during construction) are adequate to ensure that the water from the Palmerston North City treatment station remains of high quality. Accordingly, I do not consider that the construction or operation of the Turitea Wind Farm will result in any public health effects from changes to the municipal water supply.

3. ACOUSTIC EFFECTS

WHO Standards

- 3.1 I have read the evidence of Mr Pringle. I do not agree that the WHO standard which he cites can be used in the way he recommends, and, despite his arguments, I continue to support the relevance New Zealand Standard NZS6808, which I consider is up-to-date and adequate.
- 3.2 Mr Pringle also considers that the World Health Organisation (*WHO*) 1999 document to which I have referred has been overtaken by another published in 2005. That is not the

case. The 2005 report he refers to is published by the WHO European Office, for use in Europe. The 1999 report is still the current global version.

NZS6808

- 3.3 I am familiar with the current New Zealand standard for noise from wind turbines (NZS 6808) and I have also reviewed the latest published version of the draft standard. I am entirely confident that these standards provide a basis for compliance and control which, as well as preventing significant effect on amenity, also minimise risks of effects on public health.
- 3.4 I have reviewed the studies by Mr. Hegley and the peer review by Mr. Day. In my opinion this work is thorough, appropriate and takes this phase of design as far as practically achievable prior to the construction phase. I also agree with Mr. Day that there are some prediction sites where certainty of compliance requires further work (being measuring points 60, 13, 20, 58, and 63) but understand that this further work is being undertaken.
- 3.5 On that basis, I support Mighty River Power's position, which is to assure strict compliance with the ruling New Zealand standard, and to establish compliance for the final design by post-construction testing and monitoring.
- 3.6 I accept that the level of protection afforded by NZS6808 will allow some residual sound from the turbines to be heard in the community, which will be a less than minor change in the ambient background. However, the intention of the Standard is to reduce this to a level where a reasonable person would accommodate any such change as part of their neighbourhood ambience, without any impact on the amenity of their living environment. Any such effect falls well short of actually or potentially impacting on health.
- 3.7 From the designs and predictions I have seen so far, a high level of compliance can already be expected and so the extent to which modifications may be necessary is minimal and entirely acceptable. I do not consider that the Turitea Wind Farm will pose a risk to public health on the basis of the noise it will generate.

4. SOCIAL IMPACT

- 4.1 While I accept that social impact can be an indirect determinant of public health, I have not seen any robust evidence indicating that this is likely to be a problem. In this regard I rely on both my own assessment from a public health perspective and on the analysis of the evidence of others by Dr. Phillips.

5. CONCLUSIONS

- 5.1 Mr Taylor has provided professional advice and guidance on behalf of PNCC, which has responsibility for potable water quality in Palmerston North. A monitoring programme might have been useful had it been implemented at the time PNCC began investigations into the potential use of the Turitea Reserve for the construction and operation of a wind farm. However, I do not consider that it is either practical or necessary to impose such a monitoring requirement now. This is because in his evidence Mr Taylor acknowledges that the construction and operation of the Turitea Wind Farm will not result in the category “A” rating of Palmerston North City water to be downgraded as a result of the construction and operation of the Turitea Wind Farm. Accordingly, I consider that the construction or operation of the Turitea Wind Farm will not result in any public health effects from changes to the municipal water supply.
- 5.2 Mr Pringle has provided an opinion that suggests that the applicant’s adoption of orthodox practice and the New Zealand standard is inadequate and suggests that an alternative interpretation be placed on a WHO source document of which the relevant standards committee is already aware. In my opinion, Mr. Pringle lacks the necessary qualifications to make this suggestion, and I consider that the advice and opinions of the specialist noise consultants providing evidence for Mighty River Power should be preferred. Mr. Pringle’s evidence does not alter my view that the Turitea Wind Farm proposal as it stands will not pose a risk to public health on the basis of noise from the proposed turbines.
- 5.3 Finally, I do not consider that the social impact of the completed wind farm poses any risk to public health. The outcomes suggested in Mr Baines’ report, and as discussed further by Dr. Philips, are neither statistically correlated nor evidentially linked to the minimal potential environmental effects of the proposed wind farm.

Dr David Black

5 June 2009