BOARD OF INQUIRY

TE MIHI GEOTHERMAL POWER STATION PROPOSAL

In the Matter of the Resource Management Act 1991

And

In the matter of resource consent applications by Contact Energy Limited in respect of the Te Mihi Geothermal Power Station Proposal

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REBUTTAL EVIDENCE OF CRAIG DOUGLAS STEVENSON

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Introduction

1. My name is Craig Douglas Stevenson. I am a Director of Air and Environmental Sciences Limited (AES), a specialist environmental consultancy. I refer the Board of Inquiry to the statement of my qualifications and experience in my evidence in chief. I reaffirm my commitment to comply with the code of conduct for expert witnesses in the Environment Court.

2. In this brief of rebuttal evidence, I will respond to:

    - Certain issues raised in the section 42A report prepared by Mr Burton;
    - The evidence of Richard Matthews (for Geotherm Group Ltd (In Receivership)) in relation to air quality issues;
    - The evidence of Mark Brockelsby (for Waikato Regional Council) in relation to conditions governing ambient air quality monitoring.

3. At the bottom of page 14 and top of Page 15 in the "*Report On Consent Applications Under s42A Resource Management Act 1991 – Version 1. Te Mihi Geothermal Power Station*" dated 17 June 2008 (the Section 42A Report), it is stated that the consent limits for hydrogen sulphide set in the draft conditions provided by Mr Daysh are higher than the emission rates used in the dispersion modelling for the Te Mihi and Poihipi Power stations. The report does not refer to the section in my evidence headed "**Implications of proposed emission limits for hydrogen sulphide**" (paragraphs 162-173) which presents dispersion modelling of emissions at the proposed consent limits for hydrogen sulphide and shows that these effects will not be more than minor.

4. As noted at paragraph 165, the emission rates used for the dispersion modelling presented earlier in my evidence remain the most likely emission rates, so the dispersion modelling presented so far in my evidence stands as the prediction of the most likely level of environmental effects. Nevertheless, it is appropriate to carry out dispersion modelling at the emission limits, as is presented in paragraphs 168-172 of my evidence, to demonstrate an acceptably small level of effects, even though emissions as high as the level of the emission limits may not occur, and, if they do, are unlikely to occur frequently.

5. The Section 42A Report states that:

Evidence for the applicant is that emissions from the Te Mihi and Poihipi Power Stations will make little contribution to the maximum concentrations in their vicinity due to the emissions from the Rotokawa Power Stations. But this, in itself, is not a reason to increase the consent limit for discharges of H_2S from Te Mihi and Poihipi Road.

6. There are no existing consent limits for discharge of hydrogen sulphide from the Te Mihi or Poihipi power stations, so that there is no increase in consent limits. It is a matter of establishing appropriate emission limits for hydrogen sulphide from these power stations.

7. The Section 42A Report also states:

However, while the dispersion of non condensable gases will be improved, it is assumed that the overall volume of such gas generated remains much the same. This should be confirmed to explain the proposal to retain the 180 kilograms/hour H2S discharge proposed in the draft consents.

8. As far as can be predicted, the quantities of noncondensable gases will remain much the same after substantial or complete decommissioning of the existing Wairakei power station, so that it is appropriate to retain the 180 kg/hour hydrogen sulphide emission limit.

9. Mr Richard Matthews' evidence includes the following paragraph:

4.15 The consent conditions to be included in any air discharge consent granted for the Te Mihi development should ensure that the effect, in combination with the consented Geotherm discharge, does not adversely affect air quality and does not compromise the exercise of the Geotherm discharge consent and conditions should reflect the limits of the modelling predictions as set out in the AEE.

10. The cumulative dispersion modelling presented in my evidence explicitly includes the emissions from the Wairakei, Poihipi, Rotokawa, Te Mihi and Geotherm power stations, so that this provides a good assurance that the Te Mihi development, in combination with (inter alia) the Geotherm development does not adversely affect air quality or compromise the exercise of the Geotherm discharge consent. The

proposed conditions reflect the limits of the dispersion modelling predictions as set out in my evidence, as discussed above.

11. At paragraph 4.16, Mr Matthews proposes that the emission limits for the Te Mihi and Poihipi power stations should be set at the emission rates used for the dispersion modelling presented in the AEE, rather than those in the proposed conditions presented in Mr Daysh's evidence. As discussed above, the section of my evidence headed "**Implications of proposed emission limits for hydrogen sulphide**" presents the reasons why emission limits higher than those used for the dispersion modelling presented in the AEE are required, and demonstrates that emissions at these levels will not produce effects that are more than minor.

12. At paragraph 5.48, Mr Matthews proposes amendments to the emission limits for hydrogen sulphide in Condition 1 of the Te Mihi air discharge consent (116789) proposed by Mr Daysh, reflecting his view that the limits should be set at the emission rates used for the dispersion modelling presented in the AEE. For the reasons discussed above, I do not consider that this is required or appropriate.

13. At paragraphs 7.4.1 – 7.4.3, Mr Brockelsby proposes condition 3 of consent 116789 (Te Mihi Power Station discharges to air) should require that ambient air monitoring for hydrogen sulphide continue for the duration of the consent, subject to provision for the ambient monitoring to be scaled down or suspended, at the approval of the Council (ie. without necessitating a s127 change application). I do not hold a strong opinion about whether such a possible extension of the period of monitoring is required on technical grounds, since I expect that the level of effects in the vicinity of the monitoring sites of the hydrogen sulphide emissions from the Te Mihi, Poihipi and Rotokawa power stations is likely to have been well established during 3 years of monitoring after commissioning of each stage of the Te Mihi power station. It is appropriate to note that, in view of the likelihood that development of the Te Mihi station will be staged, monitoring will continue for up to 6 years after commissioning of the first units.

14. Nevertheless, I appreciate that, in the unlikely event of significant hydrogen sulphide odour complaints, monitoring data can be valuable in identifying the dominant contributor(s) and resolving issues associated with complaints. Overall, whether or not a longer period of monitoring than already provided for in the proposed condition 3 is appropriate appears to be a matter of balancing cost against the value of the

monitoring data and confidence of the local community and regulators that the air quality is appropriately assessed and managed.

CD Stevenson