

**BEFORE HEARING COMMISSIONERS
APPOINTED BY TARANAKI REGIONAL COUNCIL**

Consent No: 5262-3.0

IN THE MATTER of the Resource
Management Act 1991
("Act")

AND

IN THE MATTER an application for resource
consent discharge
emissions into the air from
a free-range poultry
farming operation

BETWEEN **Airport Farm Trustee
Limited**
Applicant

AND **Taranaki Regional
Council**
Consent Authority

**SUMMARY STATEMENT OF EVIDENCE OF
DUNCAN BACKSHALL
ON BEHALF OF VARIOUS SUBMITTERS
(THE MCDONALDS, THE HIBELLS, THE BROWNS
& POPPAS PEPPERS 2009 LTD)
Dated: 4TH MARCH 2022**

CONNECT LEGAL TARANAKI
LAWYERS
Private Bag 2031
DX NX10021
NEW PLYMOUTH
Telephone No. 06 769 8080
Fax No. 06 757 9852
Lawyer acting: SWA Grieve
Email: scottg@connectlegal.co.nz



1. **INTRODUCTION**

1.1 My full name is Duncan Backshall. I am currently a director of Air Quality NZ, a company that provides air quality consulting and technical services.

1.2 I have prepared a statement of evidence dated 8 February 2022 in regard to the application by Airport Farm Trustee Ltd to operate a poultry farm at 58 Airport Drive, New Plymouth Airport. My qualifications and experience are stated in my evidence, and I have read and agree to comply with the Code of Conduct for Expert Witnesses contained in the Environment Court's 2014 Practice Note.

1.3 I subsequently prepared a summary statement of evidence dated 16 February 2022 that also presented the findings of my visit to the AFTL site and neighbouring properties.

1.4 This supplementary statement of evidence was prepared following a review of the supplementary statements by Mr Pene and Mr Whiting, which were written in response to requests for further information by the Hearing Commissioners. I have also read the supplementary statement of evidence prepared by Mr Van Kekem in response.

Statement of supplementary evidence by Mr Pene 25 February 2022

1.5 The scope of the additional dispersion modelling undertaken by Mr Pene is described in his statement. The model configuration and scenarios that he used incorporates the changes that were agreed between myself, Mr Pene and Mr Van Kekem at our meeting on 17 February 2022 following the adjourned hearing.

1.6 I agree with Mr Van Kekem that the results of the dispersion modelling of odour should not be relied on as a definitive indication of likely odour effects, but is one of a suite of tools that can be used to assess changes to an existing operation. I note also that odour modelling is applicable only to continuous releases of odour such as occurs during the growth cycle, and not to operations such as shed cleanout.

1.7 Figure 3 of Appendix A to the supplementary evidence of Mr Pene presents the odour contour plot for the existing configuration of the AFTL farm. The 5-odour unit (OU) contour encompasses a number of the nearby residences, but there are a number of submitters who live beyond this contour who have experienced adverse odour. This may indicate that the

odour modelling has underestimated the actual adverse effects on people in the community, either because actual odour concentrations are higher, or the sensitivity of the surrounding area is high rather than the moderate assumed for a residential rural environment. A 2 OU criterion would be applicable for high sensitivity areas, as stated in the odour GPG.

- 1.8 The contour plot in Figure 5 shows the results for the proposed changes to the operation. This shows the reduction in odour predicted by the model, with the 5 OU contour mainly within the AFTL site but also including parts of the McDonald property, as discussed by Mr Van Kekem.
- 1.9 As noted in my primary statement of evidence, the reduction in odour effects may be less than indicated by the model predictions due to the non-linear response of the human nose to changes in odour intensity. I note that the 2 OU contour includes many of the nearby properties.
- 1.10 Figures 5 and 6 present the results of modelling 30,000 bird configurations. I understand that these scenarios were requested by the Commissioners to aid consideration of the permitted baseline.
- 1.11 I note the comments by Mr Pene regarding the reliability of the CALPUFF dispersion model for near-field concentration predictions. However, there remain factors that are not included in the model. As Mr Pene has stated in paragraph 11 of his supplementary evidence, the effect of the shelterbelts on building downwash cannot be modelled. The dispersion of the plume from the vertical stacks will be affected by downwash from the sheds, and how this may be affected by the shelterbelts is unclear.
- 1.12 A further issue is whether the wind data from the airport weather station is representative of conditions in the area around the AFTL site, as discussed in my primary statement of evidence.

Statement of supplementary evidence by Mr Whiting 25 February 2022

- 1.13 Mr Whiting has carried out an analysis of the odour diaries compiled by the nearby residents by comparing the entries against local wind data and site production information.
- 1.14 In paragraph 8 Mr Whiting states that the wind data from the weather station at Poppas Peppers was validated against data from the airport AWS and “*demonstrated substantially similar results*”. Mr Whiting has provided

the spreadsheet that he used for the comparison as A3 in the appendix to his supplementary evidence.

- 1.15 The comparison shown in the spreadsheet is for wind direction only. Mr Van Kekem carried out an analysis of the wind direction and notes in paragraph 1.24 of his supplementary evidence that approximately one third of the wind directions match and two thirds do not. The resolution of the wind direction data from Poppas Peppers is 45°.
- 1.16 As a further comparison, I have plotted wind roses for both weather stations as shown in **Appendix A** to my supplementary evidence. The airport AWS wind rose was plotted at 45° resolution to enable comparison with the Poppas Peppers data. The frequency scale for both plots is the same. I have also plotted the airport data at the same resolution as the wind roses presented in Appendix A of the main statement of evidence by Mr Pene, which shows generally good agreement with the airport data for 2014 - 2018.
- 1.17 The heading for the wind speed data from Poppas Peppers states the units to be "M/S or MPH". I have assumed these are m/s as this gives good agreement between the average wind speeds for both stations. I also note that the Poppas Peppers data is at 30-minute intervals, whereas the data from the airport is 1-hour averages, although I would not expect this to affect the wind rose plots.
- 1.18 The wind rose plots show significant differences in frequencies for wind directions from east to south-west. The Poppas Peppers wind rose shows almost no winds from the south and a lower frequency of south-easterly winds.
- 1.19 Without further investigation, the reason(s) for these differences is unclear. They may reflect a real difference between the wind patterns at the two sites, or a fault with the Poppas Peppers wind direction sensor. I viewed the Poppas Peppers weather station on 17 February 2022 and noted no obstructions to the south.
- 1.20 I do not consider that the wind data from Poppas Peppers validates the airport data as stated by Mr Whiting.
- 1.21 I have not examined the odour diary analysis spreadsheet by Mr Whiting in detail and note the comments by Mr Van Kekem. I did not find the graphs presented as A5 to A8 of the appendix to be useful in understanding the relationship between events at the site and the community response.

Draft conditions of consent

- 1.22 I have reviewed the draft conditions of consent incorporating the applicant's proposed changes dated 25 February 2022. AFTL has proposed PM10 monitoring (in condition 19) in the event that TRC considers that a dust complaint could result in a breach of draft condition 13. While this condition has been amended to include noxious and dangerous effects in addition to offensive and objectionable, complaints by the public are more likely to arise in regard to nuisance effects from dust in my experience. In my opinion, measured TSP concentrations are more likely to correlate with nuisance effects from dust.
- 1.23 As the purpose of the TSP monitoring in the proposed condition is to "*assist with the management and minimisation of any off-site dust effects.*", a trigger level is not specified. An appropriate trigger levels from Table 4 of the MfE Good Practice Guide for Assessing and Managing Dust could be included in the condition if considered appropriate.

Conclusions

- 1.24 The modelling results presented by Mr Pene in his supplementary evidence are a useful tool for considering the potential effects of the change to free-range operation at the AFTL site; but are not definitive and only one of a suite of tools (as noted in paragraph 1.6 above). While the modelling shows that the proposed measures will reduce odour beyond the site boundary, I remain concerned that the reduction will be inadequate to mitigate adverse odour effects on people in the community.
- 1.25 Based on the odour modelling results and the existing level of community response, the proposed free-range operations at the site are unlikely to be compatible with future residential development in Area Q as shown in the proposed district plan, or future commercial/industrial/residential activities in Area R.

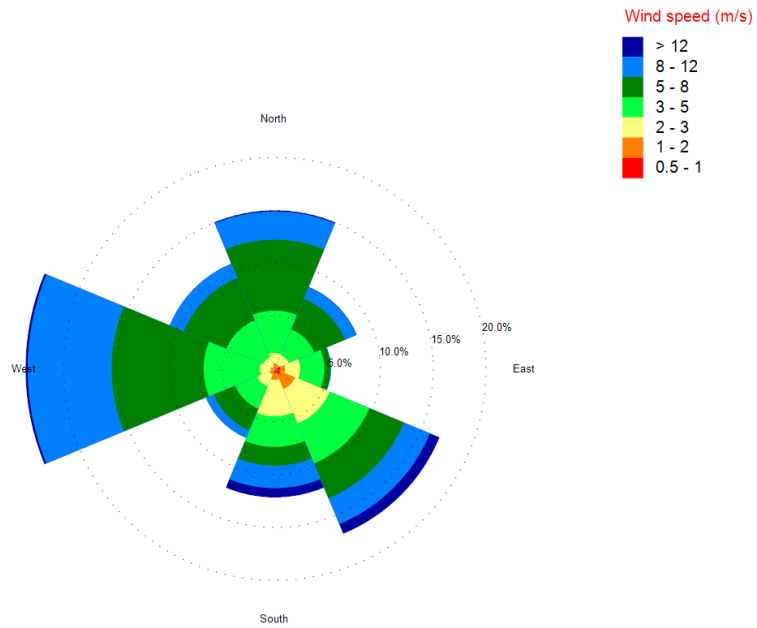


Duncan Backshall
4 March 2022

Appendix A: Wind rose plots

NPL AWS

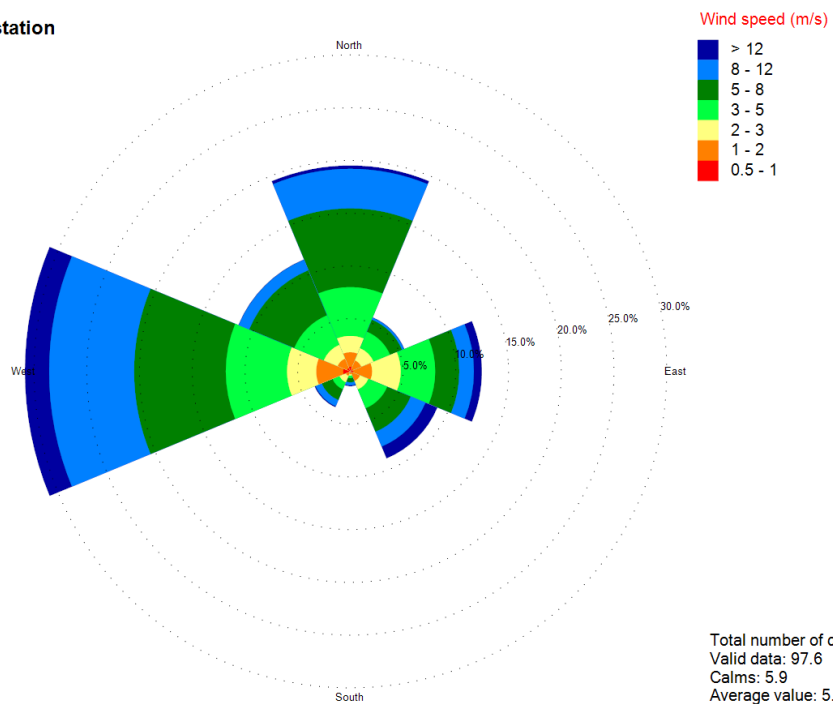
1/9/2022 - 17/2/2022



Total number of data: 4080
Valid data: 99.8
Calms: 0.5
Average value: 5.5
Maximum value: 21.1
Prevailing direction: 270

Poppas peppers weather station

1/9/2022 - 17/2/2022



Total number of data: 8307
Valid data: 97.6
Calms: 5.9
Average value: 5.6
Maximum value: 30.0
Prevailing direction: 270

NPL AWS
1/9/2022 - 17/2/2022

