Before Hawkes Bay Regional Council and Hastings District Council

In the matter of	the Resource Management Act 1991
And	
In the matter of	Application by Te Mata Mushroom Company Ltd (**TMM**) to Hawkes Bay Regional Council (**HBRC**) to discharge contaminants into air from a composting and mushroom growing operation at 174 – 176 Brookvale Road, Havelock North (**air discharge application**)
And	
In the matter of	Application by TMM to Hastings District Council (**HDC**) to increase production of mushrooms from 25 tonnes per week to 100 tonnes per week, including increased compost production, extending existing and constructing new buildings and retrospective consent for an oxidation pond at 174 – 176 Brookvale Road, Havelock North (**land use application**).

Evidence of Jason Pene for Hastings District Council as Submitter
Resumed Hearing - Air Quality

Dated 26 September 2019

INTRODUCTION

1. My full name is Jason Pene. I am a Senior Environmental Engineer and Principal at Tonkin & Taylor Limited.

2. My colleague, Jenny Simpson, who gave evidence at the first hearing is currently on sabbatical, and I have been asked to give evidence on Te Mata Mushroom Company Ltd's (**TMM**) revised proposal at the resumed hearing on behalf of the Hastings District Council. Ms Simpson was able to review the revised proposal, including the supplementary evidence of Tracy Freeman dated 17 September 2019, before she left. I have had a discussion with her about the original and revised proposal and understand her opinion. Having said that, the views expressed in this evidence are my own professional opinion.

3. I hold a Bachelor of Engineering degree with honours in Chemical and Process Engineering from the University of Canterbury. I have been involved in the assessment and management of environmental impacts, with a particular focus on the impacts of discharges to air and industrial activities, in various roles in consultancy, for regulatory authorities and in industry for more than 18 years.

4. In specific relation to mushroom substrate composting, I am currently engaged to provide technical advice to the Waikato Regional and District Councils in relation to potential air quality impacts of Mercer Assets' proposed enclosed mushroom substrate composting facility at Mercer. I have previously assessed or provided advice on air quality impacts of other composting activities in the Canterbury, Waikato and Auckland regions.

5. I have not personally attended the Te Mata Mushrooms site, but have discussed the site and surrounding area generally with Ms Simpson.

6. I have reviewed the following documents describing the amended proposal now put forward by TMM:

   (a) The memorandum of counsel for TMM in response to Directions of Commissioner Hearing Panel: No 3, dated 30 August 2019;

   (b) The document titled 'TMM à Pathway to Total Enclosure' provided with that memorandum;

(c) The additional drawing provided with the memorandum of counsel for TMM dated 2 September 2019;

(d) Supplementary evidence of Tracy Freeman concerning amended proposal, dated 17 September 2019.

7. I have subsequently reviewed the third supplementary statement of evidence of Andre Curtis dated 6 September 2019:

CODE OF CONDUCT

8. I confirm that I have read the 'Expert Witnesses Code of Conduct' contained in the Environment Court of New Zealand Practice Note 2014. My evidence has been prepared in compliance with that Code in the same way as I would if giving evidence in the Environment Court. In particular, unless I state otherwise, this evidence is within my sphere of expertise and I have not omitted to consider material facts known to me that might alter or detract from the opinions I express.

REVISED PROPOSAL

9. I understand that at the initial hearing, the air quality experts were asked by the Commissioners what would be required in order to achieve an outcome where there is likely to be no offensive and objectionable odour occurring beyond the boundary of the TMM site. The Second Joint Witness Statement dated 1 August 2019 identified that this would require either (para 11):

(a) Total enclosure and effective ventilation of the Phase 2 loading area and the Phase 1 bunker-to-bunker turning process such as illustrated by Mr Holyoake's schematic on page 24 of his supplementary evidence, together with additional controls for fugitive emissions during Phase 1 to Phase 2 transfer (rather than total enclosure of that process); or

(b) Moving the Phase 1 composting process off the site.

10. As I understand it, the amended proposal outlined in the documents I refer to at paragraph 6 involves:

(a) Step 1 - Constructing a Phase 1 filling hall;

(b) Step 2 - Then constructing a third Phase 1 bunker, and a Phase 2 filling hall, with the conveyor between Phase 1 and Phase 2 being encapsulated;

(c) Step 3 - Then installing the bale breaker and conveyor within an enclosure, with the addition of a chicken manure hopper.

11. Increases in volume are proposed after completion of Step 2, from 120 tonnes to 160 tonnes, and then after completion of Step 3, from 160 tonnes to 350 tonnes.

12. The memorandum of counsel for TMM states that TMM will ensure that the biofilter is fit for purpose, the design will take into account various airflows and that Worksafe air change volumes will be adhered to. In relation to the reference to Worksafe, my understanding is that WorkSafe/MBIE specifies workplace exposure standards values for air contaminants and TMM is required to maintain indoor contaminant levels below the WES values (by, for example, providing adequate ventilation).

13. I understand TMM has not suggested the wording of conditions to secure these outcomes.

COMMENT ON AMENDED PROPOSAL

14. As recorded in the Joint Witness Statement, the original proposal relied heavily on the effectiveness of the proposed eaves ventilation system, and I understand the experts agreed it was not possible to state confidently that off-site odour would not be experienced after the upgrades.

15. I consider that, in principle, the odour control system comprising total enclosure of the process including bale breaking, Phase 1, Phase 2 and the intervening transfer of substrate now proposed by TMM, should provide more effective control of odour than the previously proposed system. I consider that, provided the proposed system is appropriately designed, operated and maintained, it is less likely (though not impossible) that offensive and objectionable odours will be experienced beyond the boundaries of the TMM site.

16. Whether the system is effective in avoiding offensive and objectionable odour will be dependent on a range of factors including:

(a) The integrity of the enclosures and whether extraction of air from the enclosure is sufficient to contain and prevent fugitive leakage of odour from the enclosure; and

(b) Whether there is sufficient treatment capacity in the system to deal with the air and odour extracted from the enclosures.

17. Requirements that the system be designed, operated and maintained to achieve (a) and (b) should be specified in conditions of consent, and there are a number of ways the conditions could be drafted.

18. In relation to (a), conditions could, for instance, specify that the system is to be designed and operated to maintain a minimum quantum of negative pressure in calm wind conditions (and therefore continue to provide negative pressure as external wind pressure increases).

19. In relation to (b), criterion values for biofilter design parameters such as maximum air flow to bed media volume ratios or minimum bed residence times could be specified in conditions. Additional conditions could require on-going monitoring of biofilter operation and specify operating ranges for monitored operational parameters (including for inlet temperature and ammonia concentrations and for bed pressure drop, pH and moisture content). Given the uncertainty of these details at present I would prefer that the minimum design and operation criteria for the system be written into the conditions of consent, rather than the conditions simply requiring the Regional Council to approve a later proposal. I have not attempted to draft conditions myself, but will comment at the hearing on any put forward by the Regional Council or TMM.

20. In terms of the proposed increases in volumes, I note that while odour associated with transferring compost between Phase 1 bunkers, and subsequently to the Phase 2 tunnels will have been resolved after Step 2, odour from the bale breaking process will continue to be unmitigated. An increase in volume of compost from 120 tonnes to 160 tonnes would be expected to increase the odour associated with bale breaking.

21. I understand that there is no validation period proposed after completion of Step 3 before production is increased to 350 tonnes per week. Given the substantial increase from 160 (or 120) to 350 tonnes per week, a further validation process would, in my opinion, be appropriate at an interim stage before the final increase, say at 250 tonnes.

22. In terms of residual odours that will not be addressed by the enclosure proposal, I agree with Ms Freeman that odours from wet bales,[1] the biofilters, recycled water pond, removal of Phase 2 compost from the tunnels and spent compost handling may still occur. However I understand from discussions with Ms Simpson that these are relatively minor sources of odour which are not expected to result in objectionable odour beyond the boundary.

23. Subject to compliance with appropriate conditions, I consider the amended proposal should provide a significant improvement in the control of odour and result in a substantial reduction in the odour currently experienced beyond the boundaries of the site. With appropriate design, operation and maintenance of the proposed odour control system, offensive and objectionable odour effects should be able to be avoided. In my opinion, the condition requiring there to be no offensive and objectionable odour should remain, as this is an important and appropriate 'bottom line' for such activities.

COMMENT ON MR CURTIS' EVIDENCE

24. Mr Curtis has raised similar concerns in his third supplementary statement in relation to the efficacy of containment and treatment of odour once all upgrade steps have been completed and raises further concerns about the continued outdoor transfer of Phase 1 compost from Bunkers 3 and 4 after Step 1 is complete.

25. I agree that the outdoor transfer from these bunkers during this phase of the upgrade will remain as a potential source of off-site nuisance until the new third Phase 1 bunker is constructed at Step 2 and that further detail of how this will be mitigated should be provided by TMM.

26. I agree with Mr Curtis in relation to the proposed production increase from 120 tonnes to 160 tonnes per week that this should not be implemented until after a demonstration or validation of the efficacy of odour control has been provided.

[1] I understand that other mitigation measures proposed to be undertaken on commencement of the consent will not change. In particular, this includes adopting bale dunking rather than bale spiking. I point this out because Ms Freeman's supplementary evidence at para 8 states that potential odour sources, including from bale spiking, will remain. I understand this should refer to bale dunking (which has a lower odour risk than from bale spiking).

27. I further agree that additional further production increases after the implementation of Step 3 should only occur following further validation of odour control. As I have noted at paragraph 21 I believe an interim increase and validation step should be undertaken before the full increase to 350 tonnes per week is implemented.

CONCLUSION

28. In summary, I consider the amended proposal will better control odour from the composting proposal than the original proposal, which itself was an improvement on the current situation. Overall, the proposed total enclosure will be a significant improvement over what is occurring at present.

29. Subject to reviewing conditions to ensure adequate extraction and treatment capacity are maintained, I consider that the amended proposal gives a fairly high level of confidence that there will be no offensive and objectionable odours beyond the boundaries of the TMM site after completion of Step 3.

Jason Pene