

IN THE MATTER of the Resource Management Act 1991

AND

IN THE MATTER of an application to the **HAWKES BAY REGIONAL COUNCIL** by **THE TE MATA MUSHROOM COMPANY LTD** under the Resource Management Act 1991 for a resource consent to discharge contaminants to air

**SUPPLEMENTARY EVIDENCE OF DUNCAN BACKSHALL
CONCERNING AMENDED PROPOSAL,
26 SEPTEMBER 2019**

1. INTRODUCTION

- 1.1 My full name is Duncan Thomas Backshall. I am currently a director of Air Quality NZ, a company that provides air quality consulting and technical services.
- 1.2 This evidence is given in respect of the application by The Te Mata Mushroom Company Ltd under the Resource Management Act 1991 for a resource consent to discharge contaminants to air from a composting and mushroom growing operation and associated activities at 174-176 Brookvale Road, Havelock North.
- 1.3 My qualifications, experience and involvement are as stated in my evidence in chief dated 24 July 2019.
- 1.4 Since the hearing was adjourned on 2 August, the Hearing Panel has issued a number of directions related to the proposed total enclosure of the composting operations. Direction 3 dated 8 August required the applicant to submit an amended proposal by 30 August, and Direction 5 dated 30 August required the applicant to provide further information, including an assessment by their air quality expert
- 1.5 I have reviewed the amended proposal dated 30 August and a further diagram received on 2 September in Section 2. The assessment by Ms Freeman is reviewed in Section 3, followed by comments on consent

conditions and compost preparation. Conclusions are presented in section 6.

- 1.6 I have read the third statement of supplementary evidence from Andrew Curtis, dated 6 September.

2. **AMENDED PROPOSAL**

- 2.1 The amended proposal was presented as a schematic diagram showing the 3 stages of the upgrade along with a covering memo from counsel. An additional diagram supplied on 2 September shows some details of the ventilation system.
- 2.2 My review is based on the brief description of the upgrade in section 2 of the statement by Ms Freeman along with the information presented in the diagrams.
- 2.3 The first stage is shown as an additional building at the western end of the Phase 1 bunkers, the Phase 1 filling hall. The primary purpose of this building would be to capture odours from operations in the western bunkers when the curtain doors are open. It would also enclose the first section of the Phase 1 to 2 transfer conveyer including the loading hopper. Completion is planned for 13 months from consent.
- 2.4 Bunker to bunker transfers would still require compost to be transported in the open between the east and west ends of the bunkers. A door on one side of the filling hall would be used for access to the bunkers by front-end loader, so minor fugitive odour emissions from this door would be expected while it was open.
- 2.5 There would be no mitigation of odour emissions from the open doors on the east end of the bunkers during transfer operations. While most of the emissions from the west bunker doors should be captured inside the filling hall, total odour emissions from the process will be reduced by less than 50% compared to the current situation. Adverse odour effects from bunker to bunker transfers are therefore likely to continue until Stage 2 is completed as described below.
- 2.6 Front end loader access to the mixing hall would also be required during loading of the bunkers with fresh compost mixture. I would expect less odour from this operation as the material will produce lower and less

offensive odour than the partially matured compost transferred between the bunkers.

- 2.7 The second stage includes a third Phase 1 bunker and the Phase 2 filling hall to the south of the Phase 2 tunnels. The Phase 1 to 2 transfer conveyer would also be fully enclosed. The doors would be removed from the east side of the Phase 1 bunkers and the openings sealed. Stage 2 is scheduled for completion 19 months after consent.
- 2.8 This would result in the enclosure of all Phase 1 compost movements, including Phase 1 to 2 transfers. Compost production is planned to increase from a maximum of 120 to 160 tons per week once these upgrades are complete. Phase 1 bunker loading would still require access by front-end loader through a door into the Phase 1 filling hall.
- 2.9 The memo from counsel dated 30 August suggests "that it would be appropriate for HBRC and/or its expert to make a site visit to satisfy themselves that the Phase 2 process odour is being captured and to confirm the efficacy of Step 2 before production increases to 160 tonnes." While an inspection would be appropriate to check that the upgrade has been constructed as designed, I would recommend a more rigorous process to ensure that odour was controlled adequately.
- 2.10 Draft conditions 13 and 14 in the HBRC section 42a report set out requirements for odour mitigation prior to production increases. This is discussed further in section 5 of my evidence.
- 2.11 The final stage will include the installation of the bale breaker line in an extension to the south of the Phase 1 bunkers. The diagram shows that this will be open at one end to allow bales to be loaded on the conveyer. There will also be a hopper on the outside for the chicken manure mixture.
- 2.12 Completion of all 3 stages would result in the enclosure of the main odour sources, leaving minor sources such as Phase 2 compost transfer. TMM has proposed that production would then be increased to a maximum of 350 tons per week.
- 2.13 The schematic shows the proposed building design and outlines the construction schedule. However, it does not provide details of the new buildings and extensions, including the ventilation systems and odour treatment systems. The diagram received on 2 August does show the

layout of the air extraction ducting at completion of the upgrades, but no other information was included.

- 2.14 It appears that the conveyer to the bale breaking line will be open to allow for the loading of bales. It is unclear whether this opening will be sealed when the line is not operating, or how efficiently odour will be captured during bale breaking.

3. **COMPOST PREPARATION**

- 3.1 Compost preparation appears to be one of the main causes of odour effects based on the complaints analysis presented in the HBRC section 42a report. During the site visit I was informed that the previous water spray system for wetting bales had been replaced by dunking the bales in water and leaving them to drain for a few days. This is a faster process and should reduce the potential for internal decomposition of the bales. I also understand that preparation of the compost mixture has been streamlined and no longer involves laying out long windrows in the open.
- 3.2 The change to bale dunking should reduce odour from bale breaking if decomposition is a major source of odour emissions. Evaluation will require odour monitoring and/or complaints analysis over a period that includes the months when complaints are at their highest
- 3.3 The 9 July section 92 response to HBRC included the use of spiking to wet the bales and the installation of an aerated pad for draining excess water as proposed mitigation measures. This indicates that bale dunking is an interim measure. However, bale spiking is not included in the amended proposal, therefore it is unclear whether this will still be implemented.
- 3.4 The bale wetting method to be used in the long term and details of the process should be clarified.
- 3.5 Details of the current procedure used for preparing the compost would enable an assessment of the likely effects of the changes, and whether this can be improved further during the 30 months before the bale breaking line is commissioned.

4. **ODOUR ASSESSMENT**

- 4.1 Ms Freeman has assessed the reduction in risk of odour emissions, which was one of the key issues addressed during the second expert witness conference on 1 August 2019. As she notes in paragraph 10, the proposed changes remove the uncertainty concerning the odour capture efficiency of the extended eaves ventilation system.
- 4.2 Ms Freeman concludes that the proposed changes will meet this objective. I agree with this conclusion, with the proviso that TMM has provided limited details of the proposed buildings and extensions, and their associated odour capture and treatment systems, to enable this to be assessed.

5. **CONSENT CONDITIONS**

- 5.1 The applicant has not suggested changes to the HBRC draft consent conditions in their amended proposal, and the supplementary section 42a report will not be available until 4 October. I have undertaken a further review of the draft conditions taking into account the revised proposal for total enclosure of compost production.
- 5.2 Draft condition 9(a) requires the construction of a third bunker within 8 months of consent. Notwithstanding the actual time period, I strongly support the construction of the third bunker as part of the first stage of upgrades. All Phase 1 compost transfers would then be enclosed, apart from the last part of the Phase 1 to 2 transfer by conveyer.
- 5.3 Provided there is no reason why the third bunker cannot be built at the same time as the Phase 1 filling hall, I would expect this would result in a significant reduction in odour from Phase 1 compost transfers once both are completed.
- 5.4 Draft condition 9(c) states that the Phase 2 transfer building be built within 8 months of consent. The Phase 2 filling hall appears to be a more substantial building and given that the third bunker should achieve a greater reduction in odour emissions, I would accept that this be part of the Stage 2 upgrade and completed within 19 months.
- 5.5 Draft conditions 12 and 13 set out performance requirements before production can be increased following implementation of the odour controls. As the revised proposal substantially removes the

uncertainties associated with the previously proposed extended eaves ventilation system and a dunking process is now used to wet the bales, it may be appropriate to consider a production increase to 160 tons after Stage 2 is completed. This would require compliance with draft condition 13 to be demonstrated before production was increased.

- 5.6 Condition 13 requires there to be compliance with condition 3 for 6 months. I would suggest that this be changed to a period that includes the months with the highest number of odour complaints as shown by the HBRC complaint analysis if this does not unreasonably increase the time required.
- 5.7 Some of the process/operational requirements in conditions 14 to 21 will require revision.

6. **CONCLUSIONS**

- 6.1 TMM has prepared a proposal for total enclosure of the composting operations considered to be major odour sources as detailed in 11(a) of the second joint witness statement dated 1 August 2019. While details of building construction, ventilation systems and odour treatment are lacking, I expect the upgrades as shown should capture the majority of the odour emissions from these sources provided they are properly designed, constructed and operated.
- 6.2 It appears that the bale breaking line will be partially enclosed as shown in the schematic of the amended upgrades. The efficiency of odour capture from the process is difficult to assess based on the information provided.
- 6.3 I note that the HBRC odour complaints analysis indicates that preparation of the compost mixture is a major source of odour complaints. As it appears that this will be the only main odour source not to be fully enclosed, I recommend that full details of the enclosure and ventilation system be provided to enable this to be assessed.

6.4 Due to the 30-month lead in time to commission the bale breaking line, I would also recommend that the current process be assessed to determine if further mitigation of odour is possible in the short term.

Duncan Backshall
26 September 2019