

BEFORE THE HAWKE'S BAY REGIONAL COUNCIL AND HASTINGS DISTRICT COUNCIL

IN THE MATTER of the Resource Management
Act 1991

AND

IN THE MATTER of an application by Te Mata
Mushroom Co. Ltd (TMMC) for
resource consents to discharge
contaminants to air.

SUPPLEMENTARY STATEMENT OF EVIDENCE OF

ANDREW CURTIS

26 July 2019

QUALIFICATIONS / EXPERIENCE

1. My name is Andrew Ferguson Curtis and I am a Technical Director at AECOM New Zealand Limited (AECOM). My qualifications and experience are set out in my evidence in chief (EIC) dated 3 July 2019.

SCOPE OF EVIDENCE

2. This supplementary statement of evidence addresses some matters that have been raised in the evidence of the Applicant and Submitters, since my EIC was prepared. The Panel's Direction no. 2 (dated 19th July) requested that I provide this supplementary evidence in advance of the hearing.
3. Primarily the statement addresses the information on the extended hoods for the Phase 1 bunkers. However the Applicant's evidence also proposes some other changes to the Application, and therefore as relevant I have prepared some comments on these matters.
4. In addition as requested by the Panel I have prepared a brief summary of my EIC.

SUMMARY OF EVIDENCE IN CHIEF

5. The first phase of the manufacture of mushroom compost regardless of where it occurs has the potential to be highly odorous primarily due to a combination of the raw materials and the use of forced aeration.
6. Because of this there are a number of guidance documents which identify what is considered good practice, with the majority of the measures now proposed or implemented by TMMC considered to fall into that category.
7. In this case the key mitigation measure is control of emissions during the turning and transport of the Phase 1 compost. Therefore in order to control odours from that activity the controls need be very robust. At the time of writing my EIC that information was not available.
8. The only option that would eliminate the potential for odours from this source would be full enclosure, which DEFRA (the UK Environment Agency) considers appropriate from sites "*where there are persistent recurrent strong offensive odour at sensitive receptors*".
9. I talked in my EIC about the timing of mitigation. Some of my comments have been superseded the Applicant's evidence, however I remain of the opinion that there are significant advantages in building the third Phase 1 bunker earlier than proposed, as it avoids unnecessary expenditure on the extended hood and reduces the amount of time when Phase 1 compost is out in the open during the transfer and turning process.

10. I also talked about the fact that in my opinion that there should be no increase in production until all of the mitigation is in place and has been demonstrated to be effective in controlling off-site odour nuisance.
11. One of the biggest issues that exists for TMMC, is whether the implementation of the proposed mitigation measures will reduce the off-site odour effects to the extent that the residual odours no longer result in nuisance. The Applicant's assessment indicated that the residual risk would be "*low to moderate*". Unfortunately due to the unpleasant odour character of the Phase 1 compost I am not confident that a low to moderate odour risk will be acceptable to the local community.
12. If however the mitigation successfully reduces odours from the site, such that there are only one or two reported off-site odour nuisance events per year then that would not be unreasonable in my opinion.
13. I support the consent conditions proposed by the Council Officer, and consider that it is important that if consent is granted there are clear unambiguous timetables for the implementation of mitigation, and that any increases in production is conditional on evidence that implemented mitigation is working effectively.

REVIEW OF APPLICANTS EVIDENCE

Michael Whittaker

14. One of the key recommendations in my EIC was that the Applicant install as soon as practicable, a dedicated bale breaking device, to minimise odour from this source. Mr Whittaker has indicated (paragraph 26) that it will take in the order of 30 months (two and a half years) to get it installed, although I note that he has not yet had confirmation of his (paragraph 27) time estimate from the manufacturer.
15. While I accept that an estimate in this order of time is probably not unreasonable, it is a long period of time when people may be exposed to odour from this activity, and any resultant off-site nuisance.
16. Consequently I cannot support any increase in production above the existing 120 tonnes/week until the bale breaker is installed.
17. In paragraph 35 and 36, Mr Whittaker discusses some of his concerns relating to full enclosure of the compost transfer operation. While I accept that this has not been implemented in New Zealand to date I am aware that it is reasonably common overseas, and therefore consider that the concerns raised by Mr Whittaker (paragraphs 36.2 and 36.3), must be able to be successfully resolved.
18. I am unsure why Ms Freeman (paragraph 28 of her statement) and Mr Whittaker (paragraph 36.4) mention enclosure of the compost yard, as I understand that sites

typically only enclose the Phase 1 and Phase 2 operations, although I can understand why in very cold climates that the compost yards might have some protective structures.

Tracy Freeman

- 19.** Ms Freeman has helpfully prepared as Appendix 1 to her statement, a Flow Chart which sets out the Applicant's proposed mitigation and production changes as a series of steps.
- 20.** Based on this chart, it appears that the Applicant is proposing to build three new biofilters, rather than the two I had previously understood. I note that in Paragraph 25 Ms Freeman indicates that there will be two additional biofilters, so it would be useful to have this clarified.
- 21.** I am unsure what effect this might have on the extraction work that Mr Holyoake discusses in his statement.
- 22.** I also remain uncomfortable that the implementation of some mitigation and control is tied to increases in production. While I accept that there may be some financial reasons for this, I do not accept that there are necessarily good environmental reasons. In other words it is my opinion that controlling effects on the environment and nuisance for the local community should lead the process, and production only increase once it is demonstrated that there are no adverse effects from the current level of operation.
- 23.** Therefore I am comfortable, as I have previously indicated, to support production increases if there is an appropriately designed robust monitoring regime in place, that provides feedback and demonstrates that the site is able to meet an appropriate odour standard. I note that Ms Freeman (paragraph 14) also appears to support this approach.
- 24.** I have some concern about the operation of the existing biofilter in terms of ammonia removal as indicated my initial review and consequently consider that the loading rates proposed (paragraph 25.1) by Ms Freeman of $50 \text{ m}^3/\text{m}^2/\text{hr}$ may be too high, in the absence of some form of ammonia removal.
- 25.** In paragraph 44.1 Ms Freeman comments on the statement in paragraph 28 of my EIC in relation to "stronger winds". In this context, and now having the benefit of further information on the proposed hood design, I would be concerned about any winds where the velocity is greater than the velocity of the extraction system (0.66 m/s) up to about 3 m/s. I agree that in normal circumstances that in wind speeds greater 3 m/s odours are unlikely to result in nuisance effects.
- 26.** I agree with Ms Freeman (paragraph 44.4) that a staged approach to mitigation can be appropriate, but only when it is supported by an appropriate monitoring regime. Consequently I am concerned that the Applicant is not supporting such an approach.

27. Finally, while Ms Freeman indicates in paragraph 17, that an additional biofilter and extraction system are included as part of Step 1, I have not seen any information which indicates how much additional extraction will be added. It is important that the Applicant clarifies this, as if it is the entire approximate 5 m³/s calculated by Mr Holyoake (5 July memo) for the three bunkers, then this will provide greater extraction, and better performance than will occur once the third bunker is installed.
28. This would potentially provide an unrealistic assessment of the ultimate performance of the system as proposed.

Bryan Holyoake

29. I have a couple of comments on the material prepared by Mr Holyoake. In his first memo (5 May 2017) he talked about using full length curtains to assist in controlling emissions. However in the latest memo and his evidence, he states that (paragraph 39) "*the drop curtain will go down as low as possible without interfering with the front end loader*".
30. There is no explanation for this change in the design philosophy which will potentially significantly reduce the efficacy of the capture system.
31. I am also concerned that the basis for the design of the extraction system is the volume of air required to capture and treat air from the composting process with the doors closed. I accept that this volume of air needs to be treated, and the current extraction volumes seem appropriate to contain odours when the bunkers are closed.
32. However this is not the source which is of greatest concern at this time, and therefore I would have thought that an appropriate starting point was to determine how much air was required for an appropriately designed hood capture system, and then see whether the air volumes required for the compost air were sufficient or not.
33. I accept that there is some overlap in these values, as bunker extraction is not necessarily occurring at the same time as hood extraction.
34. I do not think that there are any technical reasons why a system could not be designed in this manner, and through the use of Variable Speed Drives or additional fans, the energy costs for the fans could be managed.
35. Consequently I have concerns that the volume of air that will be captured and treated will not be sufficient to adequately control emissions from the proposed Phase 1 hoods.
36. I do not think that there would be any issues having the biofilters sized for a larger flow, as the loading rate proposed by Ms Freeman of 50 m³/m²/hr is quite high, and if the biofilters were sized for this at maximum flow, and then run at lower rates for the majority of the time, there would be better treatment for the Phase 1 emissions, and potentially a reduction in ammonia exciting the biofilter.

37. I have already commented on my concerns about the slightly stronger winds, and note that Mr Holyoake echoes these concerns to some extent in paragraph 43, and sets out in paragraph 45 some potential additional mitigation.
38. I consider that these measures are all appropriate but would reiterate that increased extraction in the hoods would also assist in this regard, particularly if the curtains are extended and there is a need to ensure that the atmosphere in the enclosed space is safe for workers.
39. I note that all of Mr Holyoake's calculations are based on a three bunker configuration, and the Applicant has indicated that this will not be built until sometime in the future. Mr Holyoake also states that the three bunkers will be divided. This was not my understanding from information provided by the Applicant, and the Applicant needs to provide clarification on this matter.
40. The reason I have concerns about this is that while the implications of this on odour extraction from the bunkers is probably minimal, given the concerns I have already raised, the potential for Phase 1 compost to continue to be loaded out of the eastern end of the bunkers would generate odours that have not been accounted for by the Applicant.
41. Finally as I have already mentioned in relation to Ms Freeman's evidence, Mr Holyoake has not provided any information on how the additional extraction will be implemented, i.e. whether all or some of the additional extraction will be installed immediately or be staged to match the construction of the third bunker.
42. Consequently it appears to me that it is possible that it will not be until some undefined point in the future that air extraction will be at the level stated by Mr Holyoake.
43. Given the concerns I have already expressed about that extraction rates during Phase 1 turning, having even lower rates of extraction further casts doubt on the efficacy of the proposed hoods.
44. I consider that this also further strengthens my opinion that the third bunker should be installed as soon as possible.

Cameron Drury

45. My comments on Mr Drury's statement focus on two conditions.
46. Mr Drury has proposed two significant changes to the conditions that I strongly object to. The first is in relation to Condition 3. The Applicant has proposed a revision to the standard "no effects beyond the boundary condition" to allow them to cause effects prior to them completing all mitigation.

47. I do not consider that there is any justification for allowing the site to cause off-site effects, and in fact the Applicant's consultant indicates that through the use of appropriate mitigation including the timing of activities, that effects should be minimised.
48. The reality is that the site has always had a requirement to control its odours, and therefore it is my opinion that until the additional mitigation is installed the site will need to manage its activities including by reducing production if necessary, to control effects to an appropriate level.
49. Part of my reluctance to accept this proposal is that the Applicant could have placed an order for the necessary control equipment over two years ago following my initial review of the Application when I raised this as a concern. Consequently I do not accept that the local community should potentially suffer the consequences of the Applicants' inaction.
50. My second concern is around the removal of conditions requiring the monitoring of effects by the Applicant.
51. This was one of the main measures proposed by the air quality experts including Ms Freeman. It was our view then, and it continues to be my opinion that in the absence of appropriate monitoring and feedback to the Applicant that consent compliance will be hard to assess.
52. The intention of the independent person was to remove the issue of potential community bias and provide objective feedback on odour.
53. One of the concerns mentioned by Mr Drury (paragraph 37) is cost. I accept that there will be a cost associated with this, but do not consider that it needs to be as substantive as alluded to. For example at the North Shore Wastewater treatment plant, the equivalent of the weekly walkover (condition 37) were undertaken by a retired environmental health officer.
54. As one of the key purposes of the monitoring is to demonstrate the effectiveness of the mitigation, and to provide confidence that the site could expanded, I would be extremely reluctant to allow any increase in production if the monitoring conditions were removed.

COMMENTS ON SUBMITTER EVIDENCE

Jenny Simpson

55. I have read Ms Simpson's evidence and would reiterate the concerns she raises about any hood odour control system that was manually controlled (paragraph 18 (b)). I think that the entire Phase 1 ventilation system needs to be automated with no ability for the operators to tweak it.

56. I note Ms Simpson's comments in relation to bioaerosols and the monitoring requirements set out by the UK Environment Agency for composting facilities. Given that legionella has been raised as an issue by submitters I consider that it would be prudent for TMMC to prepare a site-specific bioaerosol assessment.
57. I note that in paragraph 27, Ms Simpson supports the use of field odour monitoring to demonstrate the effectiveness of the mitigation and does not support any increases in production until after the bale breaker has been installed and there is evidence that offensive and objectionable odours have been controlled.
58. Ms Simpson makes some comments on the monitoring conditions which she generally supports. I understand the concerns that she raises in paragraph 34, but do not consider that there is necessarily a difference in the skill sets required with paragraph 33, and consider that they could be the same person.
59. I accept that she may be correct in her concern about the wording of some of the conditions (paragraph 35 (b)) but consider that this could be resolved by appropriate redrafting the conditions

Duncan Backshall

60. I have reviewed Mr Backshall's evidence and have no specific comments other than noting that he generally supports the conditions proposed in the S42A report, and is concerned that due to the sensitisation of the local community complaints may continue even if the majority of the odours are eliminated by the mitigation proposed.
61. I share this concern, and consider that it is a very real possibility especially as additional residences are constructed as the old camp ground is redeveloped.

Dr Terry Brady

62. Dr Brady has analysed the extraction rates proposed by Armatec for the Phase 1 building, and has concluded, based on his experience, that the proposed extraction rates are significantly less than are necessary to effectively capture the odours.
63. I do not have much experience with designing these systems, however I have reviewed Dr Brady's calculations and can confirm that based on the hood specification that he has selected, that the extraction rates presented in paragraph 49 of his statement are correct.
64. On this basis the extraction rates proposed by Armatec are between 5 and 6.7 times too low. Even if some of Dr Brady's assumptions and estimated measurements are not quite correct, it still points to the proposed extraction rates being significantly less than required.

65. Dr Brady's calculations reinforce the concern I raised earlier, about the basis for the extraction rates being the volume of air required to control odours from the Phase 1 bunkers when the doors are closed.

CONCLUSION

66. As I stated in my EIC one of the key mitigation measures is the control of odours from the Phase 1 bunkers during the turning and loadout process.

67. I recommended that in the absence of that information or the Panel being comfortable with any information provided, that it would not be appropriate to grant consent.

68. While the Applicant has now provided additional information, I still have significant concerns and in particular am concerned the extraction rates are not optimised for odour control when the bunkers are open, but rather based on the volume of air required to control odours when the doors are shut.

69. I am also concerned that the information provided is based on the third bunker being constructed, and consequently does not provide any information on the likely efficacy of the system prior to the bunker being constructed and additional extraction being implemented.

70. Consequently on the basis of the information provided I cannot support the granting of consent.

71. If the panel were minded to grant consent I would support conditions based on those in the Section 42A report, modified as necessary to deal with some of the legitimate concerns raised by the Applicant and submitters.

72. However I cannot support the changes proposed by the Applicant to Condition 3 (no offensive odour beyond the site boundary) or to remove the requirement to undertaken odour monitoring, which I consider integral to the consent.

Dated 26 July 2019



Andrew Curtis