

OUR REF 13027-01L30V2

27 March 2017

Hawke's Bay Regional Council
Private Bag 6006
NAPIER 4142

ATTENTION: LAURA TINKER

Email: laura@hbrc.govt.nz

Dear Laura

DP160229A : RESPONSE TO REQUEST FOR FURTHER INFORMATION

The following is a response to the further information request dated 26 January 2017 and has been prepared in collaboration with the applicant and Tracy Freeman of Qir Quality Professionals. We are currently seeking technical input in order to respond to item (4). A response will be provided shortly.

1. *Please confirm whether or not the increase in compost production will require additional storage for chicken litter/gypsum, or result in increases in the odour generation risk as a result of more frequent or a longer duration of handling of this material. If so, confirm where and how this additional material be stored and what other measures are required to ensure that there is no odour from this increased source.*

Greater volumes of the chicken litter/gypsum mix will be required as part of increasing the production volume. It is likely that this will be accommodated by more frequent deliveries of the substrate to the site, which will continue to be stored in the existing bunkers.

Should a greater volume of the substrate be required to be stored on the site however, then this would be accommodated within bunkers designed to the same standard as the existing ones within the same general location. This could be provided for via a condition of consent or an Advice Note. We note that the potential odour impact associated with the storage of this substrate is low (refer the AQP report).

2. *Provide further details on the operation of the bale breaker, in particular:*
 - a) *Explain why the proposed canopy and extraction system does not extend to include the chicken manure hopper load-in and the freshly mixed compost load out area (as per drawing A03 of Appendix 3).*
 - b) *Confirm if additional extraction can be installed to minimise odour release from the chicken manure hopper load in area and mixed compost load out point, and if not, please explain why.*

The proposed canopy and extraction system does not extend to include the chicken manure hopper 'load-in' or the mixed compost 'load-out' areas as this space needs to remain unobstructed to accommodate loader movements associated with filling the hopper and transporting the mixed composts. Indeed, if the canopies and extraction systems were to extend, these would be at a height that it would be difficult to achieve a reasonable level of odour capture in any case.

Although these sources will not be ventilated to the biofilter, we note the following:

1. Each is a discrete source,
 2. The material will be exposed for only short durations,
 3. The mixed compost at this early stage in the composting process does not present a high potential odour impact.
3. *Provide information on the practicality of putting limits on the hours when bale breaking can occur. For example, restricting bale breaking to times when weather conditions will lessen the potential for odour transport, such as through avoiding undertaking this activity in the early morning.*

Previous operations have involved commencing this process anytime between 5.00am and 8.00am. The later the process commences the later it finishes however. In acknowledging that the early morning hours present climatic conditions that have the potential (at times) to give rise to less dispersion, the applicant could accept a condition specifying that the bale breaking process is not to commence before 8.00am.

4. *Provide further information on the extraction system proposed for the extended eaves and tunnels for the Phase 1 turning process. Please include:*
 - a) *Details of air extraction volumes required to achieve fugitive emission capture rates that would have a significant impact on off-site odour detection (this would preferably include preliminary calculations);*
or,
 - b) *Examples where a similar enclosure and extraction system has been installed elsewhere and achieved the desired results, and the details of the enclosure and extraction systems used on these sites.*

Technical input is currently being sought in order to respond to this request.

5. *Provide additional information as to the operation of the Phase 1 system prior to the construction of the third bunker, including clarification of the following:*
 - a) *Will the two existing tunnels remain split in two until the third bunker is built?*
 - b) *If they are to remain split, will mixing occur in the western ends? If so, will extraction and extended eaves be proposed for the western ends of the tunnels also?*
 - c) *If the Phase 1 tunnels are not to be split and the western ends are not opened during the mixing process, how will mixing occur and how will stacking of compost outside of the two existing tunnels be avoided until the third bunker is constructed?*

The two existing bunkers will remain split in two until the third bunker is built. To clarify this aspect of the Stage 1 process, and until the third bunker is built, compost will firstly be loaded into one of the eastern bunkers, then transferred to the other eastern bunker for the first turning process, before then being transferred again to one of the western bunkers for the second turning process. It will then be unloaded from this western bunker and transferred to the Phase 2 mixing building.

As outlined in the application, the eastern end of the bunkers will be extended by approximately 10m with ventilated eaves. This is to ensure that the length of each bunker is sufficient to contain the turning machine and turned compost within the bunker during this bunker to bunker transfer process. The extended eaves

are intended to collect any odour that may escape as a result of the loader moving in and out of the bunkers and general fugitive emissions associated with the process.

It is now proposed to also provide a ventilated eave over the bunker openings at the western end of the bunkers to capture fugitive odours during the second turning process and the unloading of completed Phase 1 compost. Updated drawings to this effect are being prepared and will be provided shortly.

So to clarify, the eastern ends of both bunkers will be open during the first turning process, while during the second turning process the eastern end of a bunker and the western end of a bunker will be open.

We also note, as a result of this configuration, that one of the western bunkers will be empty at all times. Indeed, only three bunkers are actually required to facilitate the process.

Once the third bunker is constructed (upon increasing to 200 tonnes per 7 day period), the existing 'split' bunkers will be reverted to single bunkers, resulting in three longer bunkers of even length. With the bale breaking line also commissioned at this stage, all loading and unloading will change to be undertaken from the western ends, at which time the extended eaves at the eastern end will become redundant.

To clarify, the compost will be loaded into a bunker from the western end, then transferred to another bunker (from the western end) for the first turning process, before then being transferred again to a third bunker (from the western end) for the second turning process. It will then be unloaded from the western end of this final bunker and transferred to the Phase 2 mixing building. All three bunkers will operate with a ventilated eave over the western bunker opening.

Obviously the western ends of two of the bunkers will be open during each turning process.

6. *Will the Phase 1 tunnels be loaded with the freshly mixed compost from the western end (as this is where the newly mixed compost load out area is (as per drawing A03 of Appendix 3))?*

The Phase 1 bunkers will be loaded from the western end upon installation of the bale breaking line, which is proposed to occur upon compost production exceeding 200 tonnes per 7 days.

7. *Provide additional information explaining how the Phase 2 building and extraction/treatment systems will be expanded to accommodate additional Phase 2 tunnels.*

The existing Phase 2 tunnels would be extended 20m northwest. Updated drawings to this effect are being prepared and will be provided shortly. As outlined in Table 4.2 of the application (and although not considered to be strictly necessary), vents from the Phase 2 tunnels will be ducted to the new biofilter servicing the conveyer and associated new Phase 2 mixing building. This biofilter will be upgraded accordingly to accommodate the extension of the Phase 2 tunnels.

8. *The application indicates that some mitigation measures will be undertaken within eight months. Some aspects of the process, such as introducing a bale breaking machine and semi-enclosed blending line, will not occur until production levels have reached 200 tonnes.*
 - a) *Consider and confirm whether the implementation of certain mitigation measures could be prioritised within the proposed 8 months and 200 tonnes periods to ensure that more significant issues are mitigated first.*
 - b) *Explain the potential impact on odour generation of increasing production above 120 tonnes (current limit) but still less than 200 tonnes (i.e. prior to all mitigation measures being implemented).*

The following considers the upgrades in respect to priority in terms of (a) in relation to (1), the upgrades proposed within the first 8 month period, and (2), upon increasing production to 200 tonnes per 7 days.

1. Upgrades Proposed Within the First 8 Month Period

As outlined in the application document the following upgrades are proposed within 8 months following the grant of consent:

- (1) Extend the length of existing bunkers to contain the turning machine and turned compost within the bunker during the bunker to bunker transfer process, and construct a canopy over the extended bunker entrance containing additional air extraction to the existing biofilter (a ventilated canopy will now also be constructed at the western end),
- (2) Construct a new building to the west of the Phase 1 bunkers adjacent to the Phase 2 tunnels with a hopper under an extended eave alongside. This building will incorporate loading of the turned compost into the Phase 2 tunnels so that final turning and mixing can be undertaken in a semi enclosed environment - the building will be ventilated to a new biofilter with sufficient design capacity.
- (3) Spent compost will be stored within either of the following areas:
 - (a) On a concrete pad in the existing spent compost area located at the front of the site under a canopy to keep the spent compost dry – any remaining compost will be removed from the site within 7 days,
 - (b) On a concrete pad in the centre of the site - any remaining compost will be removed from the site within 7 days.

The upgrades outlined in (1) and (2) focus on the processes (or sources) that have the potential to give rise to the highest potential odour impacts. Giving priority to these upgrades will reduce the potential impact of these processes (or sources) from 'moderate-high/high' to 'low/low-moderate', and will bring these processes up to the best practical option and best practice levels.

Although the full 8 month period will be required to accommodate detailed design, statutory approval, fabrication and construction phases associated with each, the upgrades outlined in (3) could be undertaken within 3 months of the grant of consent.

2. Upgrades upon Increasing Production to 200 Tonnes per 7 Days

As outlined in the application document the following upgrades are proposed upon increasing production to 200 tonnes per 7 days:

- (1) Bale spiking,
- (2) Pre-wetting over an aerated pad draining to the existing sump,
- (3) Bale mixing and breaking using a bale breaker machine,
- (4) Constructing a semi enclosed bale blending line with targeted air extraction,
- (5) Construction of a third Phase 1 Bunker.

The key upgrade here is introducing the bale breaking machine with the semi enclosed bale blending line as outlined in (3) and (4), which will reduce the potential odour impact of this process (or source) from 'moderate' to 'low-moderate', and bring it from a 'good practice' level to a 'best practicable option' level.

As outlined in the application document, the upgrades proposed within the first 8 month period are expected to fall in the order of \$750,000-\$850,000. While income from increased production beyond the current limit of 120 tonnes per 7 day period will assist to finance this investment, it is not until further increases

in production to beyond 200 tonnes per 7 day period that the above upgrades, which are expected to be in order of \$1.8-1.9M, will be required or affordable.

When considering whether the upgrades in terms of (1), (2) and (5) could be brought closer, the following is relevant:

- Commissioning the bale spiking and pre-wetting upgrades i.e. (1) and (2), are essentially part of the bale breaking upgrades referred to in (3) and (4), and in their current form only present the potential for a 'low-moderate' potential our impact,
- The third bunker is only largely required in response to increased production.

Owing to these factors, it is not feasible to bring any of these upgrades forward, and overall, the approach around the proposed upgrades is considered reasonable taking design timeframes, statutory approval processes, effects and financial implications into account, while certainly focusing on the processes (or sources) that have the potential to give rise to the highest potential odour impacts as priorities.

Lastly, further explanation in regard to the potential impact on odour generation of increasing production above 120 tonnes, but still less than 200 tonnes, has been requested under Item 8(b).

As outlined in Section 6.1.2 of the application document, the following conclusions can be reached in regard to the operation when production levels are between 120 and 200 tonnes:

- The *best practicable option* bar (or better i.e. best practice) will be met across all aspects of the process with the exception of those processes associated with bale wetting, breaking and mixing,
- The potential for odour to impact sensitive receptors will overall be 'low' to 'low-moderate', with only the bale breaking and mixing processes presenting a 'moderate' risk on a Thursday,
- Thursdays, during which the bale wetting, breaking and mixing processes will be carried out have attracted the lowest number of complaints (refer Table 7 of the AQP Report) – confirming the sources of greatest potential impact have been the first to be focused on and reduced.

Based on these conclusions, the potential for additional odour to occur as a result of increasing production under this scenario will be limited to the bale wetting, laying out, breaking and mixing processes as described in Sections 8.2 and 8.3 of the AQP report.

In terms of the bale wetting process, which is essentially a daily occurrence, this will have a 'low-moderate' potential odour impact, which is largely dependent on the quality of the recycled water. Commissioning of the new recycled water pond in August 2015 to maintain the recycled water in an aerobic state will assist reduce this risk. Overall however, there is not expected to be a change in the potential odour profile associated with this aspect of the process as a result of increasing production to between 120 and 200 tonnes per 7 days.

Beyond 200 tonnes however, and owing to the additional volume of bales and the longer time during which they would need to be laid out, an increase in odour potential is possible. This is the why upgrades associated with the change in methodology as outlined above are proposed at this stage.

In terms of the laying out, breaking and mixing process that occurs on a Thursday, this is still expected to present a 'moderate' potential odour impact. Commencing this process at 8.00am, rather than 5.00am (refer Item (3)), will avoid the early morning hours that have the potential to present climatic conditions that (at times) can give rise to less dispersion will assist to reduce the odour potential from this aspect of the process.

Overall, with the upgrades in place there will be a considerable reduction in the potential odour impact upon increasing production, and although the upgrades will not target processes undertaken on a Thursday, the odour profile during this day will be better managed during early morning hours. Further upgrades will come in relation to this process upon any further increases in production however.

Subject to item (4), we trust this satisfies your responses and that processing of the application may continue.

Yours sincerely

A handwritten signature in blue ink, appearing to read 'Cameron Drury', with a stylized flourish extending to the right.

CAMERON DRURY
SENIOR PLANNER
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