

## **INSPECTORS REPORT**

**WASTE LICENCE REGISTER NUMBER: 118-1**

**Facility: Marley Compost Limited, Crush, Carrickroe, Co. Monaghan**

**Recommendation: The recommended Proposed Decision as submitted to the board is approved.**

### **(1) Introduction:**

Marley Compost Limited is one of five companies in Ireland who produce compost for the mushroom industry. In total there is seven such compost producing facilities in the country. The facility is located in a rural area in the north of County Monaghan and there are approximately 10 private residences within 1km of the facility. **A facility location map is provided in Appendix 1.** The Mountain Water River runs along the northern and eastern boundaries of the facility. The facility has been operating for approximately the past twenty years in its current location and it supplies compost to mushroom producers almost nationwide. The waste materials being accepted at the facility include chicken litter and gypsum. As with all of the mushroom compost production facilities the production of the compost has been a “low-tech” process in the past and the operation has given rise to many complaints and submissions in relation to odours. The facility currently produces approximately 26,000 tonnes of Phase II compost per annum. An illustrated description of the main phases of the process carried out at this facility is outlined below:

#### Phase I

- There are four main ingredients in the production of the mushroom compost; wheaten straw, chicken litter/horse manure, gypsum and water.
- The initial stage of the process is to pre-wet the straw bales and these bales are subsequently broken up and mixed with chicken litter/horse manure and gypsum.
- The straw provides a source of carbon, the chicken litter/horse manure provides a source of nitrogen and the gypsum acts as a conditioning agent in the mix to prevent it from becoming too “greasy”.
- The initial mix of materials are formed into windrows and are left outdoors for up to five to six days and then are moved onto aerated pads which are located within confining walls but are not covered.
- Water is added when the material is being turned during Phase I. Virtually all of the process water used at the facility is collected and re-used in the process.

#### Phase II

- Following a period of up to one week on the aerated pad the material is removed and placed into fully enclosed and aerated pasteurisation tunnels. Phase II is the pasteurisation phase of the process with the compost warming up to 57°C for 8-hours. Once the material has been left in these tunnels for approximately one week the material is removed and sent for inoculation with mushroom spawn (grain covered with mushroom spores) and packing for removal off-site.
- The composting process as currently operated by the applicant is altered and adjusted slightly on an ongoing basis by altering the amount of aeration and time spent at each phase.

Phase III composting is when the Phase II compost (inoculated with mushroom spawn) is placed in aerated bunkers to initiate mushroom growth. Phase III composting is not carried out at this facility.

There are a number of environmental issues pertaining to the operation of the facility including odour, discharges to surface water and groundwater, noise emissions, potential for the spread of disease and dust emissions from the facility. Each of these issues is addressed in the relevant sections below.

The facility is required to hold a waste licence as >1000m<sup>3</sup> of material is being composted at the facility at any one time. The facility will be licensed for Class 2 of the Fourth Schedule of the Waste Management Act, 1996:

*“Recycling or reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes)”*

<b>EIS Required</b>	No
<b>Number of valid submissions received</b>	12

**FACILITY VISITS:**

<b>DATE</b>	<b>PURPOSE</b>	<b>PERSONNEL</b>
29/10/99	Site Notice Check	Margaret Keegan
18/01/01	Transfer of Licence Application	Kealan Reynolds & Margaret Keegan
22/05/01	Site Familiarisation	Kealan Reynolds
10/12/01	Odour & Site Assessment	Damien Masterson and OdourNet UK Ltd.

**(2) Facility Development**

***Infrastructure***

The recommended Proposed Decision requires that a significant level of infrastructure be provided at the facility. The required infrastructure is primarily for the control of emissions to the atmosphere, to groundwater and to surface water. The applicant will be required to expand their existing telemetry system at the facility to provide for the process and water storage monitoring requirements as per Condition 3.16 of the recommended Proposed Decision.

*i) Control Of Emissions to Air:* Condition 3.11 of the recommended Proposed Decision outlines the infrastructure required for the control of odours from the facility. The enclosure of the composting process is to be completed on a phased basis. Within twelve months of the date of grant of the licence the bale breaking line, blending line and chicken litter shredding are to be enclosed. Within eighteen months the remainder of the composting process (Phase I and Phase II) are to be enclosed. Phase II is currently enclosed with just some further enclosure works required at the

filling/unfilling area associated with Phase II. Following the enclosure of the process the applicant will be required to provide an air collection system within the constructed buildings (24 months) and within thirty-six months of the date of grant of this licence all of the collected air emissions must be treated by an appropriate odour abatement system to be agreed with the Agency. All of the infrastructural works regarding the control of odour emissions from the facility are due to be completed with thirty-six months of the date of grant of the licence.

There are a number of additional infrastructural requirements included in the recommended Proposed Decision that pertain to odour control. Condition 3.13 requires that all process water storage tanks be enclosed within twelve months of the date of grant of the licence and Condition 3.11 requires that an odour filtration system be installed at all of the outlet vents on the process water storage tanks. Condition 3.7 requires that all areas used for the storage of chicken litter shall be fully enclosed. Condition 4 of the recommended Proposed Decision sets out conditions to control the operation of the facility in a such a manner that odour emissions shall be minimised.

ii) *Control of Emissions to Surface Water:* Condition 3.5.4 of the recommended Proposed Decision requires the applicant to provide a 150mm high bund wall (of suitable construction) around the part of the facility used for the production of compost (the dirty yard area). This is required as there is potentially a lot of standing water in the dirty yard area and during periods of heavy rainfall there is an increased risk that this contaminated water may flow into the nearby stream. The recommended Proposed Decision also requires the applicant to assess the integrity of all tanks and pipelines at the facility to ensure that there are no fugitive emissions to surface water from the process. Condition 3.12 provides a system for the management of surface water at the facility and Condition 5.4 requires that the only emissions to surface water from the facility are through the surface water management system as referred to above.

iii) *Control of Emissions to Groundwater:* The composting process has taken place on concrete yards since the process commenced at the facility and during inspections of the facility it was noted that there was a number of cracks and faults in such surfaces. Condition 3.5 of the recommended Proposed Decision requires the licensee to assess the yard area with a view to ensuring that there is no movement of contaminated water into groundwater.

### **(3) Odour Control**

The primary source of odours in this process arises from the Phase I activities. There is minimal odour emissions from the Phase II process. OdourNet UK Ltd. completed an assessment of the odour emissions from the facility on behalf of the Agency and a copy of this report is included in **Appendix 2**.

The study modelled the estimated odour emissions from the facility in its current state of operation and also modelled the odour emissions in the case where the process had been enclosed and abatement technologies had been installed and commissioned. The report estimates that 72% and 21% of total odour emissions from the facility are from

the Phase I composting process and the process water storage tanks, respectively. The odour modelling completed by OdourNet UK Ltd. provided isopleth figures modelled on the basis of 98 percentile for a 1-hour average limit concentration of 6ou/m<sup>3</sup> (P. 39 of 39 of the attached report). The contours therefore represent the area where the maximum hourly average ground level concentration will be greater than 6 ou/m<sup>3</sup> for more than 2% of the hours in the year. On the information provided it is estimated that more than 30 private residences may currently be negatively impacted upon by odour emissions from the facility. The contours show that the enclosure and application of odour abatement to the air emissions from the composting process together with the control of emissions from the process water tanks will ensure that odour emissions from the facility will be significantly reduced.

Even with the installation of the infrastructure required by the recommended Proposed Decision it is likely that there will still be at least two residences adversely impacted upon. Having regard to this the applicant is required to assess the need for additional measures at the facility, following the enclosure of the process and the treatment of emissions, to further reduce odour impact beyond the boundary of the facility.

#### **(4) Nuisance & Noise Control**

- i) *Dust:* The enclosure of the bale breaking and blending line along with the chicken litter shredding area is required as per Condition 3.11 of the recommended Proposed Decision. The enclosure of this part of the process should mitigate against any significant dust emissions from the facility. The enclosure of the chicken litter and gypsum storage areas shall also mitigate against dust emissions. Condition 7.1 and Schedule E of the recommended Proposed Decision provides for dust deposition monitoring at and around the facility.
- ii) *Vermin & Pests:* The potential for vermin and pests to create a nuisance at and around the facility will be greatly reduced once the chicken litter storage area and the composting process have been enclosed. Condition 6.3 of the recommended Proposed Decision requires the applicant to implement a vermin control programme at the facility.
- iii) *Noise:* The nature of the composting process means that a lot of air handling equipment is in use at the facility (air extraction & aeration fans) and such equipment when installed outside a building can give rise to tonal noise emissions. Where it is technically feasible all fans and vents located outdoors shall be enclosed so as to minimise noise emissions.

#### **(5) Waste Types and Facility Operation**

*Waste Types:* The applicant will be restricted to the acceptance of chicken litter and waste gypsum at the facility and will be limited to the existing quantity of waste being accepted at the facility on an annual basis, this being 9,000 tonnes of chicken litter and 100 tonnes of Gypsum.

*Facility Operation:* Condition 4 of the recommended Proposed Decision provides for the day to day operation of the facility. Condition 4.1 requires the development of waste acceptance procedures at the facility and it will ensure that all wastes arriving at the facility are inspected prior to use and that they are handled in an acceptable manner.

#### **(6) Emissions to Groundwater**

The surface at the facility is primarily concrete, however some cracks do exist which may allow the vertical movement of contaminated water off-site. The limited groundwater analysis carried out as part of the waste licence application did not show that the facility was having any significant impact on the local groundwater. There are a number of private residences which have private wells for domestic use and water from a number of wells in the area is used for by livestock. The recommended Proposed Decision requires the applicant to monitor all groundwater wells within 250m of the facility. In addition the recommended Proposed Decision requires that additional groundwater wells be provided to assess the quality of the groundwater downgradient of the facility. Condition 7.1 of the recommended Proposed Decision requires the applicant to carry out monitoring of the groundwater as set out in Schedule E.

#### **(7) Emissions to Surface Water**

The limited information submitted in the waste licence application showed that the surface water quality in the vicinity was quite good from samples taken immediately upstream and downstream of the facility. There is however a significant risk to surface waters from discharges from the facility given the quantity of contaminated water being used at the facility at any one time. Following the completion of the surface water management infrastructure as referred to in Section 2 above there shall be two surface water discharge points from the facility to the Mountain Water River that is located adjacent to the facility. The Mountain Water River that flows adjacent to the facility rises in Slieve Beagh, a few kilometres from the facility and it flows to the River Blackwater which in turn flows into Lough Neagh in Northern Ireland. Condition 7.1 of the recommended Proposed Decision requires the applicant to carry out sampling and analysis of surface water discharges from the facility as well as analysis of the stream upstream and downstream from the facility. Condition 7.8 of the recommended.

#### **(8) Other Significant Environmental Impacts**

*Disease Control:* There is a potential for the spread of disease or infection from the facility from two main sources; a) airborne microbes moving off-site from the composting process and b) microbes may enter the facility in chicken litter and could subsequently move off-site as windblown matter or by vermin (e.g. foxes, rats). The recommended Proposed Decision contains a number of measures to prevent the potential off-site movement of such microbes and these included the following:

- All incoming chicken litter must be inspected and any carcasses must be removed from it and disposed of in an appropriate manner.
- All chicken stored at the facility is required to be stored in fully enclosed structures

- All chicken litter shredding areas and the composting process are to be enclosed and the air emissions be collected and treated thus preventing the potential off-site movement of airborne microbes.

In addition to the items above the applicant will be required to carry out monitoring for airborne microbes at a number of locations around the facility.

#### **(9) Air, Water and Waste Management Plans**

The Waste Management Plan for the Northeast Region as adopted does not refer specifically any future plans or policies for the mushroom composting sector. There are no Water Quality Management Plans or Air Quality Management Plans in place for the area in question.

#### **(10) Recommendation**

The recommended Proposed Decision contains a number of conditions which will significantly improve the environmental performance of this facility. In reaching a decision on the waste licence application for this facility, I have had regard to the following:

- The current state of the mushroom production process in operation at this facility which is, in principal, a 'low tech' operation with very limited controls on emissions to the environment.
- The current operation has given rise to a significant number of odour complaints at and in the vicinity of the facility and will continue to do so in its present state as is evident by the number of submissions received from local residents and as noted by Agency Inspectors on a number of occasions.
- The OdourNet UK report that was produced on behalf of the Agency to assess the most significant issue with the mushroom compost production sector i.e. odour. The findings of this report are incorporated into the recommended Proposed Decision.
- The requirement that Best Available Technology be employed at the facility
- The technologies currently being used in other EU member states.

#### **(11) Submissions/Complaints**

12 valid submissions were received in relation to this waste licence application. A summary of the issues raised in the submissions received is provided below. The contents of the submissions have been taken into account in drafting the recommended Proposed Decision.

##### **1. Odour Emissions:**

*The majority of the submissions received referred to the obnoxious odours that emanate from the Marley Composting facility. Local residents consider that odours generated at the facility have had a detrimental impact on their day to day lives in*

*the vicinity of the facility. Families cannot enjoy life as they often have to keep windows closed in their houses due to odour emissions from the facility. Local residents consider that odours from the facility can be got from their clothes and can be tasted in the air.*

### **Comment**

The facility is currently giving rise to significant odours in its immediate vicinity and the recommended Proposed Decision provides for the control of emissions from the facility over a phased time period. The recommended Proposed Decision provides for the enclosure of the composting process at the facility and the subsequent collection and treatment of air emissions from the facility (Condition 3.11). It is predicted that the current estimated zone of influence around the facility will greatly decrease following the enclosure of the process and the treatment of collected air emissions. The applicant is also required to submit a report to the Agency following the completion of the works as required by Condition 3.11 and this shall assess the need for additional measures to be taken.

### **2. Noise**

*Concerns have been expressed by residents who live in the vicinity of the facility that noise emissions from the facility are clearly audible at their properties and that the noise emissions interfere with their day to day life. The noise emissions start at 6am in the morning until 11pm at night and the peace and tranquillity of the countryside is disturbed.*

### **Comment**

The recommended Proposed Decision sets out noise level at noise sensitive locations. In order to ensure that noise levels from the facility are minimised Condition 3.14 of the recommended Proposed Decision requires that all air ventilation systems and outdoor motors are enclosed where possible and that an acoustic barrier be constructed along the boundary of the facility adjacent to the nearby private residence.

### **3. Visual Intrusion**

*Local residents are concerned about the physical appearance of the facility on the local landscape. The facility is located in a scenic area near to Slieve Beagh and that a lot of development of tourism has taken place and the presence of the facility is not in keeping with the local landscape.*

### **Comment**

Condition 4.3 of the recommended Proposed Decision requires the applicant to submit plans for the screening of the facility. Compliance with this condition will minimise the visual impact that the facility will have on the surrounding environment. The applicant will be required to assess the need for additional screening at the facility on an annual basis.

#### **4. Loss of Amenity and Tourism**

*The facility is located in an area that has benefited from peace and reconciliation grants for cross border developments and the “Bragan Tourist Action Plan” has been draw up to promote the development of the area in terms of tourism and natural amenity. The presence of the Marley Compost Facility is not in keeping with this plan.*

#### **Comment**

The facility to which the waste licence application relates is an existing one and has been in operation for over 20 years at this location. Compliance with the conditions of the recommended Proposed Decision should ensure that impact which this facility will have on the local environment and the impacts will be significantly reduced over time.

#### **5. Flies and Pests**

*A number of submissions received referred to problems encountered in the vicinity of the facility fly infestations during summer months.*

#### **Comment**

Environmental nuisances such as vermin and flies are controlled by Condition 6.1 of the recommended Proposed Decision. In addition Condition 3.7 requires that all chicken litter storage areas at the facility are fully enclosed and this should ensure that the food source for flies is no longer available. The applicant must also implement a pest control programme at the facility as per Condition 6.3.

#### **6. Planning Permission**

*A number of the submissions referred to the planning status of the facility and included reasons why planning should not have been granted to the applicant.*

#### **Comment**

The issue of planning permission is a matter for the Planning Authority to consider.

#### **7. Comments on the OdourNet UK Ltd. report**

*A number of local residents received a copy of the OdourNet UK Ltd. report and provided comments and observations to the Agency in the form of a written submission. It is noted that the extent of the current predicted impact based on odour dispersion modelling is quite extensive and includes quite a few residences and that even if the recommendations of the report are implemented that a number of houses will be impacted upon by the facility.*

#### **Comment**

The issues of odour impact and odour control/management have been dealt with earlier.



## **8. Health and Disease Control**

*Local residents have expressed concerns in relation to the potential health impacts and the control of disease from the composting facility. Health concerns have been expressed in relation to the continuous air emissions from the facility and concern is expressed for the health of children. Concerns are also expressed in relation to the emissions of deleterious matter to the air from the facility which may have negative impacts on the health of local residents.*

### **Comment**

No evidence has been submitted to the Agency regarding the negative impact of the activities at the facility on animal or human health. The recommended Proposed Decision contains a number of conditions that should minimise the impact which the facility will have on human and animal health over time. The enclosure of the process should minimise the potential for the off-site movement of airborne microbes. Also, Condition 7 and Schedule E of the recommended Proposed Decision provides for the monitoring of airborne microbes at the facility.

## **9. Dust**

*Concerns were expressed regarding dust emissions from the composting process.*

### **Comment**

The enclosure of the composting process and the enclosure of the chicken litter and gypsum storage areas should ensure that dust emissions are minimised at the facility. Given the high volume of water used in the process, dust emissions emanating from the compost material are generally not an issue.

## **10. Spent Mushroom Compost, Mushroom Compost Packaging and Tracking of Wastes**

*A submission received from Monaghan County Council (MCC) referred to the requirement for improved control of the disposal of spent mushroom compost in County Monaghan. MCC states that up to 70,000 tonnes of spent mushroom compost is arising in Monaghan each year. MCC that further problems are encountered with the unregulated dumping of mushroom compost packaging. In addition MCC request that a system be put in place for the tracking of wastes and that any imports of waste into Monaghan be approved by MCC.*

### **Comment**

No mushrooms are cultivated at this facility and therefore no spent mushroom compost (SMC) arises therefore the issue of management of SMC goes beyond the realms of this proposed decision. However, the recommended Proposed Decision does require the applicant to prepare and Environmental Management Plan and part of this plan will be targets and objectives through which the applicant will strive to improve the environmental performance of the facility, including the use of reusable packaging where possible. Condition 9 of the recommended Proposed Decision requires the applicant to maintain a record of all wastes arriving at and departing the facility. The

issue of all waste loads arriving into Monaghan requiring approval is a matter for the local authority.

Signed \_\_\_\_\_  
Kealan Reynolds  
Inspector  
Environmental Management and Planning

Dated:

# **APPENDIX 1**

## **Site Plan**

## **APPENDIX 2**

### **OdourNet UK Ltd. Report**