OFFICE OF LICENSING & GUIDANCE

INSPECTORS REPORT ON A LICENCE APPLICATION

To:	DIRECTORS
From:	DR TOM MCLOUGHLIN **- LICENSING UNIT**
Date:	28TH OCTOBER 2004
RE:	**Application for an Waste license from Bord na Móna Plc., LICENCE REGISTER 198-1**

Application Details	
Type of facility:	Non-Hazardous Materials Recovery Facility
Class(es) of Activity (**P** = principal activity):	3rd Schedule: none 4th Schedule: 2 (P), 11 & 13
Quantity of waste managed per annum:	50,000 rising to 96,000 tpa
Classes of Waste:	Green waste, bark, sawdust, brewery by-product cocoa husk and other compostables as may be approved.
Location of facility:	Kilberry, Athy, Co. Kildare
Licence application received:	31/10/2003
Third Party submissions:	None
EIS Required:	Yes
Article 14 Notices sent:	5/5/2004
Article 14 compliance date:	8/6/04
Article 16 Notices sent:	5/5/2004
Article 16 Compliance date:	29/9/04
Site Inspection:	26/11/03 Site notice compliant

1. Facility

Bord Bord na Móna Plc. propose to construct and operate a Composting Facility at their premises at Kilberry, Athy, Co. Kildare. The current Bord na Móna premises are located off the R417 road approximately 4 km northeast of Kilberry village.

The site has been used by Bord na Móna for the production of Moss Peat products since the 1940's. The area of the site under the licence application has been used for the storage of finished product (Pallets of Moss Peat). The proposed facility will be capable of composting approximately 96,000 tonnes per annum of green waste, bark, sawdust, brewery by-product and cocoa husk when full production has been reached. All final compost from the site will be used as a raw material in the moss peat production site.

Bord na Móna Horticulture produces a range of growing media products for European professional horticulturists and hobby growers. These are made using peat and a range of other organic raw materials. The products are marketed under the Shamrock brand. In addition to branded business, the company has significant own-label manufacturing contracts, most notably with B&Q, the UK's largest DIY multiple. The proposed development at Kilberry, Athy, Co. Kildare will provide Bord na Móna Horticulture with an additional raw material for its soil conditioning products and to provide an outlet for green waste and other organic wastes. Planning permission is currently being sought from Kildare County Council for the proposed development.

The proposed facility will cover an area of 2.5 hectares. The site is split into two separate sections with independent infrastructure for each site. The two sides of the site will be referenced as Phase 1 and Phase 2. It is proposed to initially hardstand the entire site, however operations will only commence in Phase 1 initially with Phase 2 continuing to be utilised by the adjacent Bord na Móna Moss Peat Facility as a storage area for the finished product.

The applicant advises that proposed facility will ensure the continued location of a Moss Peat Bagging facility in the village of Kilberry by providing an environmentally friendly alternative to raw peat for use in horticultural is understood that this is a direct request of the main customer for the Kilberry facility and if this alternative product can not be provided the applicant is of the view that their customers will be forced to look elsewhere for an alternative and the continued sustainability of the Kilberry site can not be guaranteed.

The proposed development site is located within a rural setting with a dispersed population living in the surrounding area. The nearest population centre to the development is the village of Kilberry, located approximately 1 km to the west of the development. The nearest dwelling to the site is located ca. 150 metres to the west of the site.

The proposed facility will involve the creation of a further 4 to 5 jobs for the Kilberry area.

This RD allows waste acceptance during the following hours:

- Between 8 a.m. and 6 p.m. Monday to Friday and between 9 a.m. and 5 p.m. on Saturday.

The above hours of acceptance were applied for by the company and in my opinion are reasonable taking on board any potential nuisance that might be caused to the nearest receptor site (dwelling house) if the hours of acceptance were increased.

2 Operational Description

Currently Brewery By-Product (Guinness Black Grain) is accepted on-site, this material is used as a raw material (mixed with peat moss) in the production of home compost material for the UK markets. Bord na Móna Horticulture have a waste permit for the recovery of this waste on-site.

The applicant proposes to accept 50,000 tonnes in the first year rising to 96,000 tonnes by the 5th year. The RD allows the facility to accept up to 50,000 tonnes per annum increasing to 96,000 tonnes consisting of:

- Shredded Green waste –50,000t
- Brewery By-Product-19,000t
- Sawdust-15,000t
- Bark –10,000t
- Cocoa Husk –2000t

The process leading to the production of usable, composted material will require the completion of a series of stages as follows:

- Acceptance procedures and tipping
- Mixing and formulation of windrows
- Turning / Composting
- Screening of stabilised material
- Shredding and re-use of oversize material

The wastes are combined together to form outdoor windrows for composting. The average composting period will be 10 weeks during which time the piles will be turned mechanically approximately 20 times in order to supply oxygen for microbial growth which is essential for the composting process which will be used to stabilise a range of organic waste materials / by-products which will be incorporated into horticultural growing media produced on the adjoining site.

3. Use of Resources

The facility has included details on raw material and energy as follows:

- Water-process water for the wetting of the windrows will be taken from the storage lagoons which will come from the surface water that comes from the site..
- Nitrogen – 400g per m^3 of compost

Fuels and Energy:
- Electricity – lighting, pumps and weighbridge/office
- Diesel – Turner, Trucks, Screen, Loaders.

The main use of resources at this facility will be from the diesel that will be used on site.

Vermin Control – Vermin control measures will be utilised at this facility.

4. Emissions

4.1 Air

Odour

According to the applicant odour emissions from the facility will be controlled by the following control measures:

- Rigorous control of delivered feedstock, contaminated or odorous wastes (stored too long) will be rejected.
- Use a mix of raw materials, which do not have excessive moisture content.
- Adding a high carbon source can combat any pungent ammonia odours. Ensuring the carbon to nitrogen ratio is between 20:1 and 40:1 will reduce odours as will avoiding materials with an excessive nitrogen content.
- Use good practice procedures to prevent anaerobic conditions occurring. In particular the regular turning of composting material, particularly during the initial weeks of the composting cycle.
- Regular cleaning of operational areas such as roads and drainage channels will discourage odour generation from old degrading materials. This can be easily achieved through good housekeeping.
- Odour disruption systems are available but should be used as a last resort. The applicant maintains that good management of site operations is the strategy for odour control.

The RD will requires odour control measures to be put in place at this facility as per condition 7.3.
Air monitoring will be required on a quarterly basis.

Bioaerosols

The composting of biodegradable waste involves a microbiological process where microbes (for example, bacteria and fungi) proliferate and grow by using the nutrients in the compost for food. High total viable cell counts (TVCC) are reached during the process and the microbial cells can be aerosolised (i.e. become airborne), particularly, during mechanical agitation of the composting material. This gives rise to the term 'bioaerosol'.

There are a number of fungi associated with the handling of fresh green waste and the most significant of these is *Aspergillus fumigatus*(AF).

This fungus is classified as a Group 2 pathogen[1] under the Biological Agents at Work Legislation (Directive 2000/54/EC on the protection of workers from risks related to exposure to biological agents at work). Most reported cases of aspergillosis (the condition caused by AF) have occurred in immuno-compromised individuals. Instances of aspergillosis in healthy individuals are rare, even when involved in occupations associated with exposures to high concentrations of airborne AF (according to the published litterature). Its levels depend on the prevailing conditions. Its spore diameter is around 2µm and as a result can be carried by winds over a considerable distance. The highest concentrations of AF in the air around composting facilities are expected to be found where the material is being handled, especially in the mixing, shredding, turning and screening areas.

However, a background concentration of AF is expected around the boundary of such sites as a result of its natural occurrence in the environment. According to published data levels can vary from greater than 10^3 cfu/m^3 during the summer months to zero levels in the winter. It is important to note that bioaerosols are not exclusive to composting facilities. They can be found in other non-occupational environments, for example, lawns, wooded areas, attics etc; and in occupational environments, for example, farms, mushroom production, timber processing and cotton processing etc (published data).

According to recent published reports regarding composting of green waste, bioaerosols are an emerging potential concern in composting of waste because of their potential negative effects on public health and workers who work in such facilities. To date, one of the main concerns raised by residents in the vicinity of composting sites was that composting activities could increase levels of bioaerosols and in particular concern was raised in relation to spores of the fungus

[1] group 2 biological agent means one that can cause human disease and might be a hazard to workers; it is unlikely to spread to the community; there is usually effective prophylaxis or treatment available;

AF. It should be noted that to date there are no occupational standards for bioaerosols consequently the precise risk of bioaerosols is difficult to quantify due to a lack of a defined dose-response relationship. It should be pointed out that only 2-3 cases of human illness have been caused by exposure to AF arising from composting sites according to the published scientific reports, despite the fact that 3,400 yard waste composting facilities, over 300 bio-solid composting facilities and numerous other food, animal manure and municipal solid waste composting facilities are in operation in the U.S. alone.

It should be noted that the single greatest influence on the impact of bioaerosols is the distance from the emission source. A number of 'set-back' distances have been proposed for composting operations to mitigate against any potential adverse impacts. A review of published data carried out in 1994 concluded that airborne concentrations of AF returned to ambient levels between 72 and 152m from the boundary of compost facilities. More recently, 200 metres was the distance by which AF and total mesophilic bacteria were found to reach background levels. This distance has also been proposed to be the appropriate set back distance in a recent draft report by Cre- the composting association of Ireland which was funded by the Agency.

The Environment Agency in the UK have proposed a 250m buffer zone between a workplace or boundary of a dwelling and any new composting process or modification to an existing process. However, if the proposed facility is less that 250 meters a site-specific risk assessment is required.

In addressing this potential concern the Agency requested that the company carry out a site-specific risk assessment, based on clear, independent scientific evidence which shows that bioaerosol levels can be maintained at appropriate levels at the proposed facility which may arise from the receipt, shredding and composting of green and other biodegradable waste. The Agency also requested the applicant to provide evidence that this proposed operation will not have any negative impacts on the nearest sensitive receptor site, i. e, the residential property that is in the vicinity of the proposed facility or any proposed development adjacent to the site.

In response the company carried out a case specific RA and looked at the following pathway:

Source (Composting process) ▶ Pathway (ambient air) ▶ Receptor (nearest sensitive receptor)

The company concluded that the proposed operation would not have a significant impact on the nearest receptor (150m from the boundary of the site) for the following reasons:

- The construction of a 3m berm will mitigate the potential impact of bioaerosols
- The location of the receptor with respect to the site is upwind of the prevailing winds (this should result in lower bioaerosols levels at the nearest receptor site) and therefore less likely to be exposed to bioaerosols generated by these operations.
- The mature windrows will be turned only once per week, reducing the potential bioaerosol emission.
- The windrow turning technology proposed is the best available technique. A recent study (study was referenced) has demonstrated that sealing of the turning machinery with rubber mats contributed to a significant reduction in measured bioaerosol levels off-site. This mitigation measure will be incorporated at the proposed facility.
- Movement of the mature compost to the eastern end of the site for screening and shredding would not be considered as significant (in terms of generating bioaerosols) as the windrow turning operation. This is due to the fact that mature compost will have fewer micro-organisms which results in a reduction in the number of bioaerosols coming from the compost.

The company have also stated that the following measures will also be used to mitigate against the generation of airborne micro-organisms and to control their potential effects:

- The necessity to retain composting material at a minimum 50% moisture content will minimise the formation of bioaerosols.
- Damping down of operational areas and the compostable organic materials will reduce potential for generation.
- Turning, screening and shredding should be undertaken when wind speeds will not cause micro-organisms to become airborne. During periods of strong winds (>5/6 m/s) turing operations will be limited to 4 hours per day.
- The workforce should try to limit their exposure by being upwind of any screening, shredding or turning and staying within vehicle cabs or other protected environments. The use of vehicle cabs with positive pressure systems will also provide protection from bioaerosols. In addition, staff should use the appropriate Personal Protective Equipment (PPE) in accordance with any on-site health and safety risk assessment.

The RD requires the applicant (Condition 8.15) to carry out a baseline bioaerosol monitoring study (to include in particular, spores of AF and Actinomycetes) at different locations at the proposed site and outside of the site boundary, to include sampling location(s) close to the residential property located in the vicinity of the proposed composting facility. This study is to be completed before the commencement of operations. The results of this study will give an indication of

the background levels of AF which can then be compared to the results of the bi-annual monitoring requirements of this fungus in accordance with Schedule D.6.

In conclusion, it is my opinion that the mitigation measures proposed by the applicant (which are in accordance with the published literature on this aspect) as identified in the risk assessment will be sufficient to keep the total viable cell counts of the fungus AF at or the near the background levels. Thus the risk to human health from exposure to bioaerosols for the residents at the nearest receptor site should be low.

The HSA will be notified of the proposed decision in due course having regard to functions with regard to safety at work legislation etc.

Dust

Dust deposition limits have been set in the RD together with monitoring requirements at specified locations.

4.2 Emissions to Sewer

There will be no foul or domestic effluent produced on site. All staff will use existing Bord na Mona facilities.

4.3 Emissions to Surface Waters

The proposed development is located within the Barrow catchment which is fed by a number of un-named field drains, small streams and the Tully Stream which are located to the west and north-west of the site. This river catchment is characterised by low to medium intensity agricultural lands, cutaway bog and small to medium tracts of coniferous and native woodland.

According to the applicant, the entire composting area will be an impervious hardstand area with a 400mm retaining wall. All run-offs from the site will be collected by means of a designated drainage system and the run-off will be diverted to four 1000m^3 lagoons which will be constructed for each phase (phases 1 and 2). This run-off will be reused as a wetting agent for the windrows. This system should ensure that the facility becomes a closed loop for water emissions and mitigates against any potential impact on surrounding water feature.

The RD allows for the discharge of all surface water run-off from hardstanding areas to the surface water lagoons including the surface water run-off from the bunded areas as proposed by the applicant (Condition 3.13). The surface water run-off will be discharged to purpose built lagoons.

The lagoons will comprise of 3.0m high embankments built up in 450mm layers, compacted on each lift with excavator tracks. Top of embankment fenced with 1.8m high security fencing. Lagoons lined with 2.5mm HDPE liner welded to form a 100% seal.

It is envisaged that the storage capacity of the four lagoons will be more than sufficient to cope with the most significant rainfall events. In the event that the lagoons reach the capacity a 400mm high wall which surrounds both phases will act as a temporary bund. According to the company the local Waste Water Treatment Works at Athy have been contacted and verbal agreement has been given that the excess runoff can be transported to the facility for treatment.

Condition 5.5.4 requires the company to obtain prior written agreement from the Local Authority before disposing of waste/foul water off site

Surface water monitoring requirements are established under Schedule D. Emission limit values are set under Schedule C. Condition 10.5 of the RD requires records of foul water removed from the facility to be kept.

4.5 Emissions to ground/groundwater:

The facility will be open top and exposed to rainfall The site is not located within a groundwater supply protection zone and it is proposed to cover the site with a hardstanding impermeable layer thus protecting the underlying groundwater. Surface water run-off will be generated on the hardstanding surface. This surface water run-off may be in contact with the compost and as such is considered "dirty", thus potentially posing a risk to the underlying groundwaters. This water will be contained on site through the surface water collection system and held within lagoon, thus the risk to groundwaters is negated.

The site will be covered in impermeable concrete (Condition 3.5). The RD requires that all bunds and hardstanding surfaces shall be inspected quarterly for damage and structural soundness (Condition 3.12). No direct emission to groundwater is allowed (Condition 6.4).

Groundwater boreholes have been installed and these will be used to monitor quality of groundwater.

4.6 Wastes Generated

The composting site will be used to stabilise a range of organic waste materials / by-products which will be incorporated into horticultural growing media produced on the adjoining site. These products will comprise a mixture of peat and the outputs of the compost site. Wastes generated on site will be transferred off-site in accordance with Condition 5.5.

4.7 Noise

A baseline noise assessment of the site was carried out in August 2003. Noise prediction calculations were undertaken as part of the noise survey and the results of this indicate that the noise levels experienced at the nearest sensitive receptor will not vary significantly from their current levels.

The main noise sources during the operation phase will include the turning machine, screening machine and front end loader. A small amount of shredding will take place at this facility (approx.1 day per month) Truck movements into and out of the facility and within the site will also be a source of noise especially when the reversing warning sound is active. Employees and visitors cars entering and exiting the site are also a source of noise during operational phase of project.

Condition 8 and Schedule D set the requirements for noise monitoring. The noise emission limit values to be measured at any noise sensitive location are set in Schedule C. There is a condition in the RD that the shredder cannot be used between the hours of 1800 and 0800.

4.8 Nuisance

Potential nuisances at the facility are controlled by Condition 7 of the RD.

5. Landscaping

The overall landscape of the area surrounding the proposed development is low lying pastureland, peat land and forestry, with large scale peat production and ancillary facilities occupying the land to the west (5km) and south (0.5km), with forestry to the north (2km) and with mixed agricultural / residential land to west and south.

The majority of the site where the proposed compost facility is to be located is currently used as a storage area for bagged peat products prior to transportation to wholesalers. The rest of the site is disturbed grass land scrub.

6. Cultural Heritage, Habitats & Protected Species

No recorded archaeological monuments (RMPs; Record of Monuments and Places, Archaeological Survey of Ireland 1997) are impacted by the proposed development area, and in fact, none is in the vicinity of the proposed area of development either. There are no known RMPs in the area of the proposed

development, nor were any unrecorded extant monuments found during the field inspection.

7. Waste Management, Air Quality and Water Quality Management Plans

Both the national and regional plans regarding the recovery and recycling of biodegradable waste have been considered during the assessment of this application for a waste licence. The applicant states that the proposed facility will help towards the implementation of the objectives of the Government's policy statement Preventing and Recycling Waste – Delivering Change (March 2002) and the requirements of the Landfill Directive.

8. Environmental Impact Statement

I have examined and assessed the EIS and am satisfied that it complies with the EIA and Waste Licensing Regulations.

9. Compliance with Directives/Regulations

In relation to the Groundwater Directive, the facility will not have any direct emission to groundwater.

10. Fit & Proper Person Assessment

The applicant states that Bord na Móna Plc. has never been convicted of any offence under the WMA, 1996.

Technical Competence & Site Management

The Managing director of the facility is Mr. David Keating. The applicant states that the final details of the staff numbers, positions and qualification will be submitted to the Agency before start-up of the facility.

Financial Provision

Any financial commitments incurred by compliance with the Waste Management Licence Conditions and long term liabilities with the ceasing of the disposal activities pertaining to the application would be funded by Bord na Móna Plc.

The Bord na Móna Annual Report for 2001 and 2002 were made available with the application, the audited accounts were also included.

13. Submissions

There were no submissions made in relation to this application.

14. Charges

The RD requires that the applicant shall pay an annual contribution of €11,037.50 (Condition 12.1).

15. Recommendation

I recommend that a licence be granted subject to the conditions set out in the attached RD and for the reasons as drafted.

In making the recommendation for a waste licence I have taken into account all information submitted as part of the application including the Environmental Impact Statement.

I am satisfied, on the basis of the information available, that the waste activity, or activities, licensed hereunder will comply with the requirements of Section 40(4) of the Waste Management Acts, 1996-2003.

Signed

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Dr Tom McLoughlin
Senior Inspector
Office of Licensing & Guidance

Procedural Note

In the event that no objections are received to the Proposed Decision on the application, a licence will be granted in accordance with Section 43(1) of the Waste Management Acts 1996-2003.