Article 14(2)(b)(ii) Further Information

Particulars and Evidence For

Ormonde Organics Ltd

Waste Licence No. W0287-01

Article 12 Compliance

Prepared For: -

Ormonde Organics Ltd,
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7th November 2013

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1. INTRODUCTION

This is the response by Ormonde Organics to the Notice issued under Article 14(2)(b)(ii) of the Waste Management Licensing Regulations, dated 31st October 2013, in relation to Application Register No. W0287-01 for the Materials Recovery Facility at Killowen, Portlaw. County. Waterford.

Section 2 contains the responses to the Agency's requests. For ease of interpretation each of the requests are presented in italics followed by Ormonde Organic's response. The Non-Technical Summary is in Section 3.

2. ARTICLE 12 COMPLIANCE REQUIREMENTS

1. *Explain the reason for using the Rosslare meteorological station as a source for the meteorological data used in the air dispersion modelling. Demonstrate compliance with requirements of the Agency's guidance document AG4 and in particular the correlation between the annual mean wind speed at this station and at the site location.*

There is no wind speed and direction data for the site but the wind speeds for the Rosslare Meteorological Station used in the model and the frequency and wind direction are presented in Section 7 of the OMI report.

OMI would have used data from another closer Meteorological Station if there was one, however in the absence of such a site OMI consider that the Rosslare Station is appropriate. OMI's experience of running hundreds of odour model in Ireland is that it is most unlikely that there would be a difference of 10 to 20% in the predicted odour concentrations at ground using data from different part of the country such as Dublin Airport versus Cork Airport or even Shannon Estuary versus Cork or Dublin.

OMI is of the opinion that the meterological data is not the most significant aspect in the modelling and the most important element is achieving the proposed odour emission rate.

Given the fact that the typical maximum predicted ground level concentration at a receptor location is no greater than 1.2 Ou_E/m^3 for the 98th percentile of a worse screened meteorological year, and given the fact the guideline limit value proposed is 3.0 Ou_E/m^3, OMI is satisfied that model output is appropriate for the site.

2. *Explain how the existing and proposed biofilters will be capable of achieving an exhaust odour concentration of 1,000 OUg/m3.*

The existing biofilters will be upgraded to work as biotrickling filters and be provided with a separate controlled bioreactor for the recirculation of active bacteria. This will enhance the operation and improve the active odour removal from the systems. The existing wood chip system will be also upgraded to effect these changes in the process and attain such efficiencies.

The odour load from the facility is expected to drop as all active and highly oxidisable waste will go directly to the digesters. This waste type, which includes primary sludge as opposed to stabilised secondary sludge, has a tendency to release great quantities of odours. This will alleviate the loading on the biofilter and reduce the exhaust levels on an on-going basis.

The proposed new systems will be operated as biotrickling filters, with separate and controlled bioreactors for the degradation of odours and also for the production of a sustained biomass for the removal of odours when recirculated back on to the filter. It is expected to run the systems at bio activity of 10E9, with controlled dosing of nutrients and oxidation air. These systems have being shown to achieve a more sustained and reliable removal efficiency for odours.

3. *Explain the reason for using 3.0 OUg/m3 as the comparator value for the predicted 98th percentile of hourly averages for odour ground level concentrations in the air dispersion model.*

An odour impact criterion defines the odour threshold concentration limit value above baseline in ambient air, which will result in an odour stimulus capable of causing an odour complaint. There are a number of interlinked factor, which causes a nearby receptor (i.e. resident) to complain. These include:

- Odour threshold concentration, odour intensity and hedonic tone-defined measurable parameters at odour source,
- Frequency of odour-how frequently the odour is present at the receptor location,
- Duration of odour-how long the odour persists at the receptor location,
- Physiological-previous experiences encountered by receptor, etc.

By assessing these combined interlinked factors, the potential for an activity to cause odour complaint can be determined. As odour is not measurable in ambient air due to issues in sampling techniques, limit of detections for olfactometers and the inability to monitor continuously, dispersion models are useful tools in odour impact assessments and odour risk analysis including assessment of the effects of mitigation measures. Dispersion modelling also allows for the assessment of proposed changes in processes within the facility without actually having to wait for the processes to be changed (i.e. predictive analysis).

When utilising dispersion models for impact assessment, specific impact criterion (odour concentrations) need to be established at receptors. For odour assessment in general terms, this is called an odour impact criterion, which defines the maximum allowable ground level concentration (GLC) of odour at a receptor location for a particular exposure period (i.e. 3.0 Ou_E m^{-3} at the 98th percentile of hourly averages for screened meteorologically data (a minimum of 5 years usually).

Based on AG4 and H4 guidance documents, and the fact that all odours will be passed through an odour control system (as in no untreated odours will be vented to atmosphere):

- For high risk odour sources, all sensitive locations should be located outside the 3.0 Ou_E m^{-3} at the 98th percentile of hourly averages for worst case meteorological year (usually 5 years of hourly sequential meteorological data screened).

The appropriateness of this odour impact criterion is based on the fact that all odours will be treated to a known level and therefore no untreated odours will be vented to atmosphere. As such, treated odours will be hedonically more pleasant and will not be as intense as untreated odours thereby raising the acceptable levels at which they are likely to cause odour complaint.

4. *Describe in terms of ground level concentrations for odour and other parameters the impact of the proposed activity on the nearby fruit farm and private dwellings across the river. Illustrate on a suitably scaled map the location of the fruit farm and relevant dwellings.*

Table 4.2 in the OMI report presents the worst case predicted concentrations at the worst case boundary receptors in the vicinity of the facility. Table 4.3 presents the predicted GLC's for each compound at each of the identified sensitive receptors. The fruit farm location is marked at R8.

Figure 6.14 shows the predicted GLC for odour at 3 Ou_E/m^3 for the 98th percentile for worst case screened met year. As can be observed the odour plume does not pass over the river so the predicted GLC of odour at any receptor location across the river is less than 3 Ou_E/m^3 for the 98th percentile for the worst case screened year.

At the fruit farm location (R8), the maximum predicted GLC is less than or equal to 1.1 Ou_E/m^3 for the 98th percentile of hourly averages for worst case screened year.

All predicted GLC beyond the facility boundary will be lower than these values. The predicted GLC at the fruit farm and at any receptor across the river will be less than these stated values. The predicted values for all compounds are within recommended limit values and therefore the predicted GLC's at the fruit farm and at the receptor locations across the river will comply with the stated guideline values.

Therefore the model predicts that there will be no air quality or odour impact at receptors either across the river, or at the fruit farm.

5. *State the arrangements for the management of soiled water generated from washing/sweeping the yard.*

The yards will not be washed down, but will be cleaned as required using a road sweeper. The contents of the road sweeper will either be treated on-site sent to an approved off-site treatment plant.

6. *State the location for storage of compost. Demonstrate that the on-site storage capacities for compost and digestate are sufficient, with particular reference to the requirements, as may be relevant, of the European communities (Good Agricultural Practice for Protection of Waters) Regulations 2010.*

The final product will be stored inside the Compost plant until it is sent of site for horticultural/agricultural use. The digestate will be stored in the refurbished above ground tanks, which are located in a bund. This will prevent any escape to waters.

Revised Non-Technical Summary

A revised Non-Technical Summary is in Attachment 1.

Attachment 1

Non-Technical Summary

WASTE LICENCE APPLICATION

NON-TECHNICAL SUMMARY

FOR

ANAEROBIC DIGESTION FACILITY

AT

ORMONDE ORGANICS Ltd,

KILLOWEN,

PORTLAW,

COUNTY WATERFORD

6th November 2013

1 NON-TECHNICAL SUMMARY

Ormonde Organics Ltd. (Ormonde Organics) is Ireland's leading sludge management company. Its composting facility at Killowen, which is approximately 3 kilometers (km) north of the town of Portlaw, County Waterford, has been in operation since 2007. The existing facility is allowed to accept a total of 40,000 tonnes of sewage sludge, kitchen waste, green waste (grass and tree cuttings) and septic tank waste per annum.

Ormonde Organics has seen an opportunity to introduce a new way of sludge treatment (anaerobic digestion) that will produce electricity and heat, which can either be used on site or sold to the National Grid. This will result in an increase in job numbers and help sustain the existing 20 full time jobs.

The application for a Waste Licence is in accordance with the requirements of the Waste Management Acts, 1996 to 2011. This non-technical summary contains the information specified in Article 12 (1) (u) of the Waste Management (Licensing) Regulations, 2004 (S.I. No. 395 of 2004).

Compliance with Requirements of the Waste Management Act 1996 to 2011

Best Available Techniques (BAT) will be used to prevent/eliminate or, where this may be deemed not practicable, limit/abate/reduce emissions of environmental concern resulting from on-site recovery activities.

Nature of the Facility

Existing Facility

The existing facility occupies the site and buildings of the former Michell Ireland tannery, which closed in 2003. The site covers 3.2 hectares (ha) and is accessed off the R680 Carrick on-Suir to Waterford Road.

The facility operates in accordance with planning permission granted by Waterford County Council and a Waste Permit granted by Waterford County Council. The planning permission allows the facility to take in and compost a total of 40,000 tonnes of sewage sludge, kitchen waste, green waste (grass and tree cuttings), septic tank waste and a range of non hazardous organic wastes annually. The Permit specifies the way in which the facility should be operated to ensure it does not cause either environmental pollution, or nuisance to neighbours.

The site layout is shown on Drawing No 10P536-01. Composting is carried out inside the main building, which has offices at the front. There is a workshop, weighbridge, paved open yards, parking areas and a disused waste water treatment plant. There are 20 workers, including management, technical and office staff and general operatives.

The kitchen wastes include materials defined as animal by-products (raw and cooked meats). The biological treatment (composting and anaerobic digestion) of such materials are regulated by a European Union (EU) Directive that requires controls to be provided to ensure that the materials are treated to such a level that the end products does not present any risk to animal or human health. These controls include providing separate processing areas for wastes containing animal by products and other wastes. Ormonde Organics has applied to the Department of Agriculture, Fisheries and Marine for approval to process wastes containing animal by-products.

Proposed Changes

The proposed layout is shown on Drawing No. 10P539-2. There will be no change to the total amount of waste accepted annually, which will remain at 40,000 tonnes. It is proposed to construct three new anaerobic digestion tanks. Associated with these will be a new waste reception building, a biomass (silage) area, a new building for the pasteurisation of wastes that contain animal by-products before it is processed, a new compost maturation building and a building to house three gas engines and one gas flare, which that will only be used if too much gas is produced. Two new odour treatment units (biofilters) will be provided and the two existing biofilters will be upgraded.

Eight of the existing tanks in the disused wastewater treatment plant will be upgraded and used to store the incoming wastes and the digestate. The existing septic tank and percolation area will be replaced by a new treatment system at a different location within the site.

Classes of Activity

The relevant activities as per the Third and Fourth Schedule of the Waste Management Acts 1996 – 2011 will be as follows: -

Third Schedule – Waste Disposal Activities

None.

Fourth Schedule – Waste Recovery Activities

Principal Activity:

R3: ‘Recycling /reclamation of organic substances which are not used as solvents (including composting and other biological transformation processes), which includes gasification and pyrolisis using the components as chemicals’. (P)

It is intended to continue composting operations and also carry out the anaerobic digestion of biodegradable wastes. This is the principal activity, as all of wastes will be processed under this Class.

R1: ‘Use principally as a fuel or other means to generate energy:’

It is intended to use the gases produced in the anaerobic digestion process to generate heat and power

R13: ‘Storage of waste pending any of the operations numbered R 1 to R 12 (excluding temporary storage (being preliminary storage according to the definition of 'collection' in section 5(1)), pending collection, on the site where the waste is produced).’

It is intended to store wastes at the facility pending operations R3 and R1

R12: ‘Exchange of waste for submission to any of the operations numbered R 1 to R 11 (if there is no other R code appropriate, this can include preliminary operations prior to recovery including pre-processing such as, amongst others, dismantling, sorting, crushing, compacting, pelletising, drying, shredding, conditioning, repackaging, separating, blending or mixing prior to submission to any of the operations numbered R1 to R11).’

It is intended to process the wastes prior to use.

Quantity and Nature of the Waste to be Recovered or Disposed

A maximum of 40,000 tonnes per annum will be processed. Total waste inputs are shown on Table 1.1.

Table 1.1 Waste Types and Amounts

Waste Type	Maximum Capacity*
Household, Commercial & Industrial Source Separated Waste	20,000
Non-Hazardous Sludges including Sludges from Industrial, Municipal, Water & Waste Water Treatment Plants	20,000
Total	**40,000**

*Subject to Market Conditions

Raw and Ancillary Materials, Substances, Preparations, Fuels & Energy used on the Site

Raw materials and energy that will be used include: -

- Diesel for on-site equipment,
- Hydraulic oil and engine oil for use in on-site equipment,
- Electricity,
- Water.
- Acid for Scrubers in Biofilter system.
- Woodchip

Plant, Methods, Processes, Abatement, Recovery, Treatment and Operating Procedures

The estimated type and number of machinery items that will be used at the facility on a regular basis includes: -

- Front Loading Shovels
- Forklifts
- Compost Turner
- Air Compressors
- Air extraction fans and ducting
- Odour Abatement Plant
- Telecom
- Electricity
- Water obtained from on-site well.
- Sanitary wastewater treated in an on-site septic tank and percolation area.
- AD Plant – CHP engines & Flare

Waste Processing

Composting

It is not proposed to change the existing composting process. The wastes treated at the site are sludges from industrial sites such as the food and drink industry and sludge produced urban waste water treatment plants operated by the local authorities. The sludges are mixed with woodchip and then loaded into specially constructed compost bays in the Compost Building. The bays have pipes in the floor, through which air is pumped up into the mixture of sludge and woodchip. The objective is to maintain a high oxygen level in the mixture to encourage oxygen using (aerobic) bacteria to grow and feed on the organic matter.

To accommodate the regulations regarding strict separation of waste containing animal by-products from other wastes, additional maturation and pasteurisation capacity will be provided in new Building 3. To ensure effective odour control, air locks will be installed on the northern and southern entrances to the Compost Building. The finished product will be stored inside the building,

Anaerobic Digestion (AD)

The wastes that are currently composted can also be used to generate energy (heat and electricity). This can be done by using a different treatment process, called anaerobic digestion. Unlike composting, this process uses bacteria that do not need oxygen (anaerobic) to feed on the organic matter. The process breaks down waste into solid and liquid residues and gases. The gases include methane which can be used as a fuel to produce heat and electricity. Biomass (for example grass silage is can also be digested and a concrete lined silage storage area will be provided, which will be used to store biomass before it is fed into to the process.

The wastes/silage will be fed into large fully enclosed tanks, which are continuously stirred and the temperature rises to the optimal level. The gases will drawn off and treated and fed to the gas engines which generate electricity and heat. The electricity will either be sold to the national grid, or used at the facility instead of the ESB supply and the heat may be used in the process. The residue from the process will include a fibre like solid and a liquid (digestate). The solid residue and digestate, which contain nutrients, will be used on farmland as an alternative to chemical fertilisers.

The anaerobic digestion plant will involve the construction of three new tanks, a new waste reception building, a building to house the gas engines and a gas flare that will only be used if too much gas is produced. A number of the existing tanks in the wastewater treatment plant will be converted and used to store the incoming wastes and also the digestate during the wetter months when it can not be landspread.

Information Related to Section 40(4) (a) to (d) of the Waste Management Act

Emissions from the facility will not result in the contravention of any relevant standard or emission limit prescribed under enactment. The proposed development is consistent with the Joint Waste Management Plan for the South East Region 2006 – 2011.

The proposed activities are based on best management practice and take into consideration the BAT Guidance Note for the Waste Sector: Waste Transfer Activities published by the EPA. The facility operations, when carried out in accordance with licence conditions, will not cause environmental pollution.

The facility Manager and Deputy have the required qualifications and experience to operate the facility.

Energy will be used efficiently and the heat produced by the biological treatment processes will be used at the facility. The facility will be designed, constructed and operated to minimise the environmental impacts of any incident/accident.

An assessment of the effects of the changes on the habitats in the surrounding area (Appropriate Assessment) was completed and is included in the application.

Source, Location, Nature, Composition, Quantity, Level and Rate of Emissions

Groundwater

The biological waste treatment processes will not give rise to and direct or indirect emissions to groundwater. Sanitary wastewater from the toilets will be treated in the proposed new waste water treatment plant that will replace the existing septic tank.

Surface Water

The site is in the catchment of the River Suir, which is approximately 350m to the east of the site. Rainwater from the existing roofs and paved areas is collected in the facility's surface water drainage system. All rainwater run-off passes through an oil interceptor and then to a sump located in the bund around the former wastewater treatment tanks, from where there is an underground pipe to the river.

There will be no change to the location of the outfall to the river. There will be an increase in the volume of rainwater run-off from the extension area. A storage tank will be built to collect and store the run-off and release it at a controlled rate to the existing drains so that it does not cause flooding either within or outside the site boundaries.

Air

The proposed changes will mean a slight increase in the level of traffic to and from the facility with a consequent minor increase in exhaust emissions and dust. Odours from the sludge treatment process are controlled by an odour control system, installed in 2007, which collects air and treats it in a series of scrubbers and two biofilters filters. This control system has proven to be effective. A new odour control system consisting of two more biofilters will be provided to collect and treat air from the new buildings where the wastes will be treated. The two existing biofilters will be upgraded to improve their performance.

Noise

All waste processing is and will continue to be carried out either indoors or in fully enclosed units.

Assessment of the Effects of Emissions on the Environment

Groundwater

The only emission to groundwater will be the new percolation area serving the proposed septic tank/waste water treatment system. The ground conditions are suitable for the use of the proposed system and the design and installation will comply with the guidance specified in the EPA Manual on Wastewater Treatment Systems.

Surface Water

The proposed changes will not affect the quality of the run-off to the River Suir. The increase in the amount of run-off will not give rise to flooding.

Air

The proposed changes will mean a slight increase in the level of traffic to and from the facility with a consequent minor increase in exhaust emissions and dust. The current dust control measures, which include damping down paved areas in dry weather, have proven to be effective and will continue to be used.

Odours from the waste treatment processes are and will be controlled by odour control system that collects air and treats it in a series of scrubbers and biofilters. The existing two biofilters will be upgraded and two new biofilters will be installed.

Noise

All waste processing is and will continue to be carried out either in doors or in fully enclosed units, which will minimise the risk of noise disturbance at off site locations.

Monitoring and Sampling Points

Dust

Dust will be monitored annually.

Noise

Noise will be monitored annually.

Odour

Daily odour patrols around the site perimeter will be carried out.

Surface Water

The surface water discharge from the site will be monitored annually. As the discharge will be intermittent and linked to rainfall events grab samples will be collected.

Air Emissions

Air emissions from the biofilters and CHP engines will be monitored regularly.

Wastewater

Emissions to the new percolation area will be monitored annually.

Prevention and Recovery of Waste

Waste oils generated during plant and vehicle maintenance will be collected and sent off-site for recovery.

Off-site Treatment or Disposal of Solid or Liquid Wastes

The leachate produced in the composting process is recirculated and surplus leachate, which would require on-site treatment is typically not generated. Any surplus leachate that may arise in the future will be treated in the proposed anaerobic digestion plant.

The proposed anaerobic digestion plant will not generate a wastewater that requires treatment on-site. The liquid digestate produced in the process will be sent from the site and applied to agricultural lands. Any run-off from the silage storage area will be collected and treated in the anaerobic digestion plant.

Emergency Procedures to Prevent Unexpected Emissions

Ormonde Organics has prepared and Emergency Response Procedure for the existing operations and this will be undated following the issue of the Waste Licence. Ormonde Organics has prepared an Environmental Liabilities Risk Assessment that identifies the 'worst case' scenario for environmental pollution at the facility.

Closure, Restoration and Aftercare of the Site

It is not anticipated that the facility will close in the medium to long term. In the unlikely event that the facility shuts down it will be decommissioned in accordance with the Closure Restoration and Aftercare Management Plan (CRAMP) agreed with the EPA after the licence is issued. Post closure measures for the monitoring and maintenance of the buildings will also be as agreed with the EPA.