

**REGULATION EC 1774/2002**  
**laying down health rules concerning animal by-products not intended**  
**for human consumption**

**enforced by**

**ANIMAL BY-PRODUCTS REGULATIONS 2003**  
**(SI 2003/1482)**

**ANIMAL BY-PRODUCTS (WALES) REGULATIONS 2003**  
**(SI 2003/2756 W.267)**

**ANIMAL BY PRODUCTS (SCOTLAND) REGULATIONS 2003**  
**(SSI 2003/411)**

**GUIDANCE ON THE TREATMENT IN APPROVED**  
**COMPOSTING OR BIOGAS PLANTS OF ANIMAL BY-**  
**PRODUCTS AND CATERING WASTE**

**Defra BSE Division**

**Version 7: December 2004**

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# **GUIDANCE ON THE TREATMENT IN APPROVED COMPOSTING OR BIOGAS PLANTS OF ANIMAL BY-PRODUCTS AND CATERING WASTE**

*Version 7: December 2004*

## **1. Objective**

In reading these notes, it should be clearly understood that the objective of this legislation is to ensure that all meat and other products of animal origin which are treated by biogas (anaerobic) digestion or composting must meet the treatment standards required, to ensure sufficient pathogen removal so that the treated material may be safely applied to land.

These notes are intended as guidance for Defra and State Veterinary Service officials and for composting and biogas plant operators. They may be revised or updated as required. Please note the version number at the top of the page. The most recent version of the guidance will be available from the Defra Animal By-Products website at:

[www.defra.gov.uk/animalh/by-prods/default.htm](http://www.defra.gov.uk/animalh/by-prods/default.htm)

## **2. Legislative and Policy Background**

Under the Waste Strategy 2000, the Government has strict targets to meet for the recycling or composting of household waste for England and Wales. By 2005, 25% of all household waste must be recycled or composted. Under the EU Landfill Directive, the UK also has to meet targets for the reduction of biodegradable municipal waste sent for landfill. By 2020 the amount of biodegradable municipal waste sent for landfill must be reduced to 35% of the amount produced in 1995. Composting and biogas digestion are seen as vital tools for achieving these targets.

### *2.1 UK Controls Prior to 1 May 2003*

Under the Animal By-Products Order 1999 (SI 1999/646) (as amended by SI 2001/1704) it was an offence to allow livestock, including wild birds, access to catering waste containing meat or products of animal origin, or catering waste which originated from a premises on which meat or products of animal origin were handled. The aim was to prevent the introduction and spread of serious animal diseases such as foot-and-mouth disease that can be in the meat. Although this did not prevent the composting or biogas treatment of catering waste containing meat or products of animal origin, the ban on access by wild birds did, in practice, prevent its use on land (whether treated or not). This effectively banned composting and biogas digestion as treatment and recovery methods for such catering waste.

### *2.2 Regulation EC 1774/2002*

Regulation EC 1774/2002 (the 'EU Animal By-Products Regulation') has applied since 1 May 2003. It permits the treatment in approved composting

and biogas plants of catering waste and other low risk (Category 3) animal by-products. Animal by-products other than catering waste and, until 31 December 2005, some former foodstuffs (see Annex 1) must be treated to at least the standard set out in Annex VI of the EU Regulation (the 'EU standard'), which is treatment of particles no greater than 12mm to at least 70°C for 1 hour in a closed system.

High risk (Category 2) animal by-products can not be used as feedstock in composting and biogas plants, except where they have first been rendered to the 133°C/3 bar/20 minute EU pressure-rendering standard (method 1 in the EU Regulation).

Category 1 animal by-products such as Specified Risk Material and catering waste from means of international transport are not allowed to be treated in composting or biogas plants under any circumstances.

For plants which treat only category 3 catering waste (and no other animal by-products except for manure, digestive tract content, milk or colostrum), the Regulation allows Member States to specify their own standards at national level. 'Catering waste' is defined in the Regulation as 'all waste food including used cooking oil originating in restaurants, catering facilities and kitchens, including central kitchens and household kitchens.'

Note that this is a narrower definition of catering waste than that which used to exist under the GB Animal By-Products Order 1999. Please see Annex I of this guidance for full details on the differences. The Annex also explains that for a transitional period, until 31 December 2005, certain former foodstuffs from food manufacturing and retail premises may be transported and treated in biogas and composting plants in the same way as catering waste.

### *2.3 Independent risk assessment and devolved legislation*

Defra commissioned an independent risk assessment examining the risks to public and animal health from the use of catering waste in composting and biogas treatment processes, in order to inform thinking on suitable national standards. The risk assessment makes recommendations on alternative treatment standards suitable for plants treating only catering waste. The risk assessment can be found at:

[www.defra.gov.uk/animalh/by-prods/cater/comprisk.htm](http://www.defra.gov.uk/animalh/by-prods/cater/comprisk.htm)

The national rules on catering waste and the EU rules are administered and enforced in England by the Animal By-Products Regulations 2003 (SI 1482/2003), in Wales by the Animal By-Products (Wales) Regulations 2003 (SI 2003/2756 W.267), and in Scotland by the Animal By-Products (Scotland) Regulations (SSI 2003/411). Copies of all national legislation are available on the HMSO website at:

<http://www.legislation.hmsso.gov.uk/stat.htm>

For ease of reference, Regulation EC 1774/2002 may be referred to in this document as 'the EU Regulation' or 'the Regulation' and the various enforcing Regulations at national level will be referred to as 'the Regulations'.

Note also that references to the Environment Agency relate to England and Wales. The equivalent body in Scotland is the Scottish Environment Protection Agency (SEPA). Although this document generally refers to the Environment Agency/SEPA, it should be noted that Agency policy may not always coincide across both bodies, and readers may wish to double check with their relevant Agency to guarantee accuracy.

### **3. Summary of controls in the Animal By-Products Regulations 2003**

#### **3.1 Scope**

This section provides a brief overview of the types of materials it is permissible to treat in composting and biogas plants, and discusses circumstances where premises are exempt from the controls.

##### *3.11 Category 3 animal by-products*

Category 3 animal by-products must be treated in accordance with the EU Regulation. Composting must take place in an approved closed vessel system, and anaerobic digestion must include a pasteurisation phase. The EU standard treatment is 70°C for at least 1 hour with a maximum feedstock particle size of 12mm. As well as the time/temperature treatment standard, the EU Regulation also requires certain hygiene and plant management requirements to be met.

##### *3.12 Category 3 catering waste (including, until 31 December 2005, certain former foodstuffs)*

The EU Regulation permits Member States to introduce national treatment standards for premises which treat only category 3 catering waste. The UK national treatment standards are set out in section 3.22 of this guidance.

These standards were set following an independent risk assessment (see section 2.3 above). The national treatment standards are not applicable for premises which treat other category 3 animal by-products, pressure-rendered category 2 material, or which treat a mixture of catering waste with animal by-products or pressure-rendered category 2 material. All of these examples must be treated to the EU standard as described above.

A composting plant treating category 3 catering waste to one of the UK national standards must either have a two-stage composting system, or must treat only catering waste where measures were taken at source to ensure that meat was not included ('meat-excluded' catering waste, see section 3.14 below). In a two-stage composting system, the first composting stage must be done in a closed vessel. The second stage need not be enclosed. In a

one-stage system for 'meat-excluded catering waste', the composting must be done in a closed vessel.

### 3.13 Category 2 animal by-products

Category 2 material can not be used as feedstock in composting or biogas plants, except where it has first been rendered in an approved rendering plant to the EU pressure-rendering standard (133°C/3 bar pressure/20 mins). Fallen stock and casualty animals therefore can not be composted or digested anaerobically (unless pressure-rendered first).

Material that has been pressure-rendered to the EU standard does not need to be pasteurised because the rendering process will have sufficiently reduced pathogen levels. A biogas plant that treats only pressure-rendered material and no raw material therefore does not need to have a pasteurisation unit.

NB The TSE Regulations 2002 prevent the use of mammalian meat and bone meal on agricultural land. This ban includes anything derived from rendered mammalian material, so a composting or biogas plant treating rendered material could not use the resultant compost or digestion residues on agricultural land. The material could still be used on non-agricultural land.

### 3.14 Meat-excluded catering waste

'Meat-excluded' catering waste means that measures were taken at source to ensure that meat was not included in the catering waste. In other words, this means that the meat and non-meat fraction of the catering waste must be separately collected, and *never mixed*. Meat-excluded catering waste does not mean waste where meat and non-meat have been collected together and steps subsequently taken to remove the meat fraction from the mix. Rather it means that the meat fraction was never mixed with the non-meat waste stream. It is recognised that it will not be possible to ensure that no meat is ever present and a small amount of meat in a meat-excluded catering waste stream will not necessarily mean that the waste must be treated as non meat-excluded. This risk has already been factored into the risk assessment.

|   | Garden waste only | Meat-excluded catering waste | Catering waste from which meat has not been excluded |
|---|-------------------|------------------------------|--|
| Is it controlled by ABP Regulations?                    | No                | Yes                          | Yes  |
| Does it require 2 composting stages?                    | No                | No                           | Yes  |
| Can I use a single composting stage plus 18 day storage | No                | Yes                          | No   |

### 3.15 *Green waste*

The composting of 'green' waste is not affected by these Regulations. Green waste refers to garden or park waste such as grass or flower cuttings, or branches and hedge trimmings. Waste food from premises on which meat or products of animal origin are not handled (e.g. a dedicated fruiterer) is also not affected by these Regulations. Both these waste streams may already be composted under a Waste Management Licence, an exemption from waste management licensing, or in some instances a Pollution Prevention and Control permit from the Environment Agency/SEPA.

Green waste mixed with catering waste must be considered as catering waste and treated accordingly. A bin full of grass cuttings and kitchen vegetable peelings would therefore be considered to be catering waste. If the vegetable peelings were placed directly in a dedicated bin or other container, and had never been mixed with the meat fraction of the kitchen waste, the contents could be considered to be 'meat-excluded' catering waste. The same approach applies equally to material collected at the kerbside from domestic properties and to material collected at centralised facilities such as civic amenity sites and recycling centres.

### 3.16 *Biodegradable Packaging*

As well as food waste which clearly falls within the definitions of catering waste or animal by-products, many composters may also wish to use biodegradable packaging such as cardboard in their feedstock.

Under ordinary circumstances, where such packaging is not soiled or contaminated with animal by-products (including catering waste), we would not seek to control it under animal by-products legislation. Because we would normally consider biodegradable packaging outside the scope of our legislation, it could be put into a green waste bin for treatment in a green waste plant, or used as feedstock in a plant treating meat-excluded catering waste.

However, we would control packaging where it is obviously soiled or contaminated with animal by-products. In such circumstances (e.g. the cardboard is covered in blood) we would take the view that the packaging itself should be treated as an animal by-product, due to the level of contamination. The packaging could still be composted in a plant approved to treat category 3 material, but it could not be treated at a green waste facility or in a meat-excluded composting system.

We would expect local authorities with green waste schemes to explain in their promotional literature that ordinarily there is no problem with cardboard packaging going for green waste recycling, but that packaging contaminated with animal by-products should not be put into the green waste bin.

### 3.17 Home composting (regulation 16)

Regulation 16 of the Animal By-Products Regulations 2003 states that the composting requirements of the Regulations 'do not apply to the composting of category 3 catering waste on the premises on which it originates provided that (a) the decomposed material is only applied to land at those premises; (b) no ruminant animals or pigs are kept at the premises; and (c) if poultry is kept at the premises the material is composted in a secure container which prevents the poultry having access to it during decomposition.'

This means that there is an exemption only for situations where the catering waste is generated, composted and then used all on the same premises i.e. once brought onto a site in the form of food, the waste material does not then leave the site. It is not acceptable to collect waste from a number of premises and then compost it and use it on a single premises.

The principal purpose for this exemption is so that domestic householders may compost their own kitchen scraps on their own domestic compost heap or worm bin, subject to the livestock restrictions listed above. However, domestic households are not the only premises that may benefit from this exemption.

'Premises' does not have a fixed legal definition, but the following is intended to act as a guideline to the question of what may or may not be considered a premises under the Animal By-Product Regulations.

Generally speaking, the home composting rules have been developed on the basis that occupation of the premises gives the occupier access to a garden or similar area where composting may be carried out. The garden must be part of the premises (and not for instance a public park or community area).

The following table demonstrates how this might apply to specific types of premises. The first column lists various examples of dwellings and/or buildings. The second column states whether these could be considered to be single premises, and could therefore benefit from the exemption under Regulation 16 (bearing in mind that the other conditions of Regulation 16, relating to livestock on the premises and use of the finished product only on those premises, must also be complied with). The third column gives a brief explanation of the reasons.

| <i>Example</i>                              | <i>Can Reg 16 Apply?</i> | <i>Notes</i>   |
|---|--------------------------|--|
| Detached house, family                      | Yes                      | Premises with access to garden.  |
| Terraced house, family                      | Yes                      | As above.  |
| House or block of flats split into separate | Yes                      | Although the building itself is split into different flats, those flats that include access to the garden may compost on the premises under Regulation 16. |

|                                |     |   |
|--------------------------------|-----|---|
| bedsits/ flats                 |     |   |
| Allotments                     | No  | Allotments are not on the same premises as the owner's house, so waste would have to leave the premises to get to the allotment. As such this is not permissible.   |
| Guest house                    | Yes | Essentially the same as a family house (above).   |
| Garden flat with own garden    | Yes | If in a shared block or house, access to the garden is exclusively restricted to the garden flat residents, then only they may compost their own kitchen waste in the garden. Kitchen waste from other residents within the building could not be composted in the garden (since if they have no right of access to the garden, it cannot be considered to be on their premises).   |
| School                         | Yes | The school premises itself is a single and self-contained premises. The livestock restrictions will apply and so schools with on-site farms could not compost.  |
| University campus              | No  | Generally speaking campus accommodation does not have individual gardens but access to communal grounds. This is not considered to be within the scope of Regulation 16.  |
| Prison                         | Yes | The prison is a single premises and composting under Regulation 16 is permissible (subject to livestock restrictions as usual). Note that if staff accommodation is on the site (e.g. a governor's house) this is a separate premises. In this instance, prison kitchen waste could be composted and used only on the prison premises, and the kitchen waste from the governor's house could be composted and used only on the governor's premises. |
| Hospital                       | Yes | Like prisons, the premises itself is a single and self-contained premises. If staff accommodation is on the site, it will be treated as a separate premises.  |
| Shopping Centre                | No  | A shopping centre is not single premises, but is made up of many different premises.  |
| Garden shop in shopping centre | Yes | An individual premises within a shopping centre could compost its own kitchen waste for use on the garden which forms part of the shop.   |
| Office block                   | Yes | Similar to block of flats (above). Those premises within the block that have legal access to the garden or green area may compost under Regulation 16.  |
| Caravan park                   | No  | Similar to a university campus, the caravan   |

|                            |    |  |
|----------------------------|----|--|
|                            |    | park gives access to community areas rather a garden as such.                  |
| Village with village green | No | There are multiple premises within a village and the green is a communal area. |

The kitchen waste may of course be collected by a refuse collector or taken to an approved site elsewhere for treatment.

In any event, we would strongly advise against including meat in home composting, as it is attractive to vermin. Material from the compost heap should be fully composted before it is applied to the garden. Advice on best practice for home composting is available from the Henry Doubleday Research Association ([www.hdra.org.uk](http://www.hdra.org.uk)), the Soil Association ([www.soilassociation.org](http://www.soilassociation.org)) and the Centre for Alternative Technology ([www.cat.org.uk](http://www.cat.org.uk)).

The use of garden (green) waste in domestic composting is not affected. Householders who own ruminants, pigs or poultry may compost their garden waste as normal. Householders composting their own kitchen waste, or garden waste, do not require a licence from the Environment Agency/SEPA.

### 3.18 Mechanical Biological Treatment (MBT) Plants

Mechanical Biological Treatment (MBT) plants are mixed waste treatment facilities, which generally seek to stabilise biodegradable material prior to landfill (to reduce its capacity to generate methane), or to reduce its moisture content (hence increasing its calorific value) prior to thermal treatment. Most MBT plants rely upon a composting process (or in some cases, anaerobic digestion) to stabilise residual waste.

The scope of the EU Regulation is such that it applies to catering waste only when (i) from means of transport operating internationally; (ii) destined for animal consumption; or (iii) destined for use in a biogas or composting plant.

Thus the controls will apply to MBT plants only if they are producing compost for land application or landfill cover. If they are simply treating the material to remove recyclables prior to landfill or incineration of the residual waste, they will not be controlled. Nevertheless, this is an issue that we shall keep under review. If it becomes apparent that the operation of such plants does pose a risk to animal health, we shall consider the need for suitable controls. MBT plants will still be subject to Waste Management licensing, or in some instances a Pollution Prevention and Control, by the Environment Agency/SEPA.

An MBT plant which intends to use the material it produces on land, including as cover for landfill, will be considered to be a composting or biogas plant, and will fall inside the scope of the Regulation. Such operations must be approved by Defra, and must therefore meet all the treatment and hygiene requirements that ordinary composting plants must achieve. As with any other approved composting plant, the MBT plant would need to meet one of

the national standards if the plant processes only catering waste or the EU treatment standard if it processes other animal by-products. It will also require approval from the Environment Agency/SEPA before any of the treated material is applied to land.

### 3.19 Summary table of waste streams

The table below provides for reference a series of examples of types of waste, and explains briefly which category they fall into under the Animal By-Products Regulation, and why.

There are four main categories of waste to consider. They are, in descending order of risk from an animal health perspective, animal by-products, catering waste, meat-excluded catering waste, and green waste.

Where any two or more of these waste streams are mixed, the entire mixture must be considered to be the highest risk material involved e.g. where catering waste is mixed with animal by-products, the whole mix must be treated as animal by-products; green waste mixed with meat-excluded catering waste must be treated entirely as meat-excluded catering waste; all four streams mixed together must all be treated as animal by-products.

| <i>Waste stream</i>                        | <i>Category</i>   |
|--|---|
| Domestic kitchen waste                     | Waste arising in kitchens, including domestic kitchens, is considered category 3 catering waste (where meat or products of animal origin are handled on the premises).  |
| Domestic garden waste                      | Will be considered green waste provided it includes only garden waste and is not mixed with kitchen vegetable peelings. Green waste is not controlled by the Regulation.  |
| Meat-included catering waste               | Catering waste collected with no effort to separate meat waste from non-meat waste will be category 3 catering waste.   |
| Meat-excluded catering waste               | Catering waste where the meat and non-meat fraction of the catering waste must be separately collected, and <i>never mixed</i> . This is also category 3 catering waste but there are more treatment options than for meat-included material.                     |
| Mixed kitchen and garden waste collections | This contains kitchen waste and so will be category 3 catering waste (where meat or products of animal origin are handled on the premises). This is meat-excluded catering waste, since the meat fraction will be placed in a separate bin for separate disposal. |
| Park waste                                 | Park waste will normally be green waste, unless the park waste includes food waste e.g. from the park bins. If this is the case, the material will be category 3 catering waste.  |
| Retail waste                               | Retail waste is considered category 3 animal by-  |

|  |   |
|--|---|
|  | <p>products (where meat or products of animal origin are on the premises). However, there is a transitional period during which, if raw meat and raw fish are not included, retail waste may be treated as catering waste until 31 December 2005.</p> <p>If the retail outlet has a restaurant on-site, the waste from the restaurant kitchen will be catering waste.</p>   |
| Food factory waste   | <p>Food factory waste is category 3 animal by-products.</p> <p>The transitional measure for former foodstuffs referred to above also applies to waste from food factories that produce products that can be consumed without further cooking (e.g. pasty, scotch egg).</p> <p>Food factory waste from plants producing products that need to be cooked before consumption is not covered by the transitional measure.</p> |
| Butcher's waste  | Category 3 animal by-products.  |
| Fallen stock on farms  | <p>Fallen stock are category 2 animal by-products. TSE susceptible animals will be considered category 1 at the point of disposal (as they will contain SRM). Since they are not category 3, fallen stock cannot be composted.</p>  |
| Casualty animals on farm                                       | As with fallen stock, casualty animals will be category 2, but will be considered category 1 at point of disposal if they contain SRM. Casualty animals cannot be composted.  |
| Street sweepings and waste from public litter bins             | <p>Street sweepings and waste from public litter bins that contain discarded food waste should be considered to be category 3 catering waste. Street sweepings in urban centres or near fast food restaurants may well be category 3 catering waste. Sweepings with no or negligible amounts of food waste (e.g. sweepings from rural areas, or leaf sweepings in autumn) may be considered green waste.</p>              |
| Waste from international transport (i.e. from outside the EU). | Category 1 catering waste. As category 1 material, international catering waste cannot be treated in a compost or biogas plant.   |
| Biodegradable packaging  | Outside the scope of the Regulation provided it is not contaminated with animal by-products (or meat in catering waste), so could normally be composted in a green waste plant. If however it is contaminated (e.g. covered in blood) it would need to be treated as category 3 animal by-products/catering waste.  |

## 3.2 Treatment Standards

### 3.21 *The EU standard*

The EU treatment standard for composting and biogas digestion is 70°C for 1 hour with a maximum particle size of 12mm. This treatment standard is mandatory for any premises that treat category 3 animal by-products other than catering waste, or category 2 animal by-products that have been pressure rendered. The requirement for 12mm maximum particle size means a maximum of 12mm in one plane i.e. a feather may be 300mm long, but if it is less than 12mm thick it will fall within the 12mm range.

Treatment under the EU standard only requires a single stage in a closed reactor to be approved under the Regulation (in contrast to the national standards for catering waste as outlined below).

In a system where animal by-products are mixed with another feedstock, such as green waste, the animal by-products would be subject to the EU standard, but the green waste would not (since green waste is not an animal by-product) i.e. the animal by-products would need to be reduced to 12mm maximum particle size, but this would not be required for the green waste. A plant mixing different feedstocks would need to address this in the Hazard Analysis and Critical Control Points (HACCP) plan to ensure that each feedstock is treated in accordance with the Regulations. Further details of HACCP plans are at Section 4.

### 3.22 *National Standards for Catering Waste (Schedule 1, Part II of the Animal By-Products Regulations 2003)*

National standards for the treatment of catering waste in approved composting and biogas plants only apply where the catering waste is the only animal by-product being used (except for manure, digestive tract content, milk or colostrum).

Materials falling under the transitional measures for 'former foodstuffs' may be treated as catering waste until 31 December 2005 i.e. they can be treated to national standards during the transitional period, but must be treated as an animal by-product from 1 January 2006.

Note that the introduction of national treatment standards for catering waste does not mean that catering waste must be treated to a national standard – it may also be treated to the EU standard in the same manner as other category 3 animal by-products.

The national standards are based on a matrix approach, to reflect the risk assessment's recommendation for multiple barriers. All systems must be able to meet a minimum time/temperature standard (related to the type of system being used). These standards also specify the maximum particle size that

may be processed in that system. As well as the time/temperature requirement, all systems must include additional barriers, as explained below. The minimum time/temperature and maximum particle size requirements for the various systems are:

| <b>System</b>                                | <b>Minimum temp</b> | <b>Minimum time at minimum temperature</b>   | <b>Max particle size</b> |
|--|---------------------|--|--------------------------|
| <b>Composting (closed reactor)</b>           | 60°C                | 2 days   | 400mm                    |
| <b>Biogas</b>                                | 57°C                | 5 hours  | 50mm                     |
| <b>Composting (closed reactor) or biogas</b> | 70°C                | 1 hour   | 60mm                     |
| <b>Composting (housed windrow)</b>           | 60°C                | 8 days (during which windrow must be turned at least 3 times, at no less than 2 day intervals) | 400mm                    |

The Regulations require that the time/temperature parameters are achieved as part of the composting process (see also Section 7.2). A composting plant is defined in the EU Regulation as, ‘a plant in which biological degradation of products of animal origin is undertaken under aerobic conditions’. Thus the plant must be producing compost in order to gain approval i.e. an operator could not seek approval of a plant solely on the basis that it heated the catering waste to the required parameters. The requirement for a ‘closed composting reactor’ pre-supposes that the feedstock will undergo biological degradation while in-vessel, as well as achieving the time/temperature requirement. It is a pre-requisite of approval under the Regulations that the premises is licensed (or exempted) by the Environment Agency/SEPA.

Similarly, a biogas plant is defined in the EU Regulation as, ‘a plant in which biological degradation of products of animal origin is undertaken under anaerobic conditions for the production and collection of biogas.’ Therefore as well as achieving the time/temperature treatment standard in the pasteurisation or hygienisation unit, anaerobic digestion for the purpose of biogas collection must take place. As with compost plants, it is a pre-requisite of approval that the premises is licensed (or exempted) by the Environment Agency/SEPA.

### *3.23 Additional barriers for meat-excluded and other catering waste*

Plants treating catering waste under national standards, as well as meeting the time/temperature treatment requirement, must also utilise at least one additional barrier, as described below. The requirement for additional barriers is a national standard, and does not apply to systems complying with the EU standard (which has a far smaller maximum particle size, precluding the need for a second stage).

#### *(i) Biogas digestion*

Biogas plants must either -

- (a) treat only meat-excluded catering waste; or
- (b) following treatment, store the material for a minimum of 18 days. Storage may include anaerobic digestion.

For example, a biogas plant could pasteurise catering waste by treating it to 70°C for 1 hour (or 57°C for 5 hours), followed by an 18 day anaerobic digestion stage. Alternatively, a biogas plant could treat only meat-excluded catering waste to the time/temperature standard alone. Both of these would comply with the two barrier requirement for biogas plants.

*(ii) Composting of meat-excluded catering waste*

Composting plants treating only meat-excluded catering waste may replace the second composting stage with storage for a minimum of 18 days. Storage does not need to take place in an enclosed system. Vermicomposting is permissible as a method of storage (provided that the minimum 18 day requirement is adhered to).

*(iii) Composting of catering waste from which the meat has not been excluded*

Composting plants treating catering waste from which the meat has not been excluded at source must as an additional barrier perform a second composting stage, using any of the standards in the matrix. For this second stage, windrowing does not need to be housed, and could be carried out in the open (but the time/temperature treatment requirements remain the same as for housed windrows).

We would normally expect that the two composting stages take place in separate and distinct vessels/areas (i.e. the catering waste is treated in one vessel, then moved to a second vessel or a windrow for the second stage). However, some systems where the material is mixed may be able to achieve both stages in a single vessel. It would need to be demonstrated that the material within such a vessel achieves the two time/ temperature treatment stages separately, and that between completing the first stage and the second stage, the material is mixed (e.g. by an auger or other turning device). Separation between the two stages to prevent cross-contamination is also vital (e.g. in a vertical system, ensuring liquid cannot bypass the first stage by dripping or seeping down into the second stage). A system where the material remains static within the vessel could not be considered as able to achieve both stages in the single vessel, as although it may be possible to attain the temperature requirements, the material is not mixed in between. Consequently any material in a cold spot in the first stage will remain in a cold spot in the second stage, and may not be properly composted. The same applies to systems which operate on a plug flow basis, if they do not have a specific mixing mechanism. Material passing through a plug flow system may achieve the two temperature requirements at separate points, but simple movement through the system does not constitute mixing. In these instances,

material would have to be removed from the vessel to a separate second composting stage.

### 3.24 Windrows

As the first composting stage must be in an enclosed system, where windrows are used for the first composting stage, they must be housed in an enclosed, roofed building. In order to ensure that all the material in the windrow is sufficiently treated, the windrow must be turned at least 3 times, and must have achieved a minimum temperature of 60°C for at least 2 days prior to each turn, and also following the third turn (i.e. at least 3 turns means that the 60°C/2 days temperature standard must be achieved at least 4 times). Alternatively, if operating to the EU standard the windrow must achieve the 70°C/1 hour standard also at least 4 times to ensure all the material in the windrow is treated.

Housed windrows must operate on an 'all-in, all-out' basis. This means that all the material in the housed windrow will be considered to be the same batch, and to have been treated to the same standard. Systems where windrows at different stages of treatment are kept in the same building, and are removed at different times, will not be approved, as the capacity for cross-contamination and bypass of the system is considered too great. The only exception would be where the windrows are in completely separate parts of the building i.e. different rooms separated by floor-to-ceiling walls, separate entrances and exits, separate personnel etc.

Where windrows are used for the second composting stage, they need not be housed and may be open. The time/temperature requirements are exactly the same as those for housed windrows in the previous paragraph. Second stage windrows do not need to operate on an 'all in, all out' basis. However, separation between the windrows would still need to be demonstrated.

### 3.25 *Alternative systems for the treatment of catering waste (paragraph 2 of Part II of Schedule 1)*

Approvals will normally only be given for plants achieving one of the standards above or the EU standard. However, the implementing Regulations provide that 'the Secretary of State may approve a different system if she is satisfied that it achieves the same reduction in pathogens as those methods (including any additional conditions imposed on those methods) in which case the approval must fully describe the whole system'. This provision has been included to allow the approval of systems which achieve the required treatment standards but which may otherwise vary from the requirements of the Regulations i.e. it is intended to allow flexibility for new approaches or innovations that may not be reflected by the current Regulations. However, the parameters in the table are based on a detailed risk assessment and in practice we do not expect to issue approvals for alternative treatment

standards. Were an operator to submit an application for approval of an alternative system, we would expect them to produce documentary evidence in support of the system, including an independent risk assessment of the system and its efficacy in inactivating pathogens, using rigorous risk assessment techniques equivalent to those used in the original risk assessment protocol. The independent verification should then be submitted to the authorising officer at the planning stage.

### **3.3 Separation Requirements for Different Types of Material**

#### *3.31 Separation Requirements for the Transportation of Different Types of Material*

Where more than one type of waste stream (e.g. animal by-products, catering waste, meat-excluded catering waste, green waste) is being collected, the separation between the different waste streams must be maintained, from the point where they are separated (e.g. into different bins), throughout collection and transportation, and during final treatment.

Measures taken to ensure separation must be properly recorded and audited. It is suggested that the measures could include clear and frequently reminded instructions to householders backed up with posters/leaflets and clearly labelled warnings on bins, audit at collection, at deposit into collection vehicle and at reception at the treatment facility. Bins may be rejected at point of collection where meat is obviously present, and the householder should be informed why their bin has been rejected. Regular inspection should take place at the treatment facility reception area, to ensure separation is acceptable. Operators should use this to monitor effectiveness of separation, and to trigger the issuing of additional information leaflets if unacceptably high contamination by meat is observed. However, we would expect the measures to be designed to ensure that the separation is as complete as possible. The measures used to ensure separation will form part of operator's HACCP plan (see section 4).

Because the risk to animal and public health comes primarily from meat, the requirement for separate collection applies only to meat and meat products, and does not apply to other products of animal origin i.e. eggshells, cheese and other non-meat products of animal origin can be placed in the non-meat fraction.

The examples below illustrate situations where typical domestic household can and cannot be considered to be meat-excluded catering waste:

(i) the catering waste is all collected in one bin. This will clearly not be considered 'meat-excluded' catering waste, as no attempt at separation has been undertaken.

(ii) the catering waste is all collected in one bin initially, and then separated later into a meat fraction, and a non-meat fraction. This is also not considered to be 'meat-excluded' catering waste, as although the meat

fraction has been separated out, this has taken place after it has already been mixed with the non-meat fraction.

(iii) the catering waste is collected separately in two bins, with meat being put in one bin, and fruit and vegetable peelings being put in the other bin. In this instance, the waste in the fruit and vegetable bin would be considered to be 'meat-excluded' catering waste. The non-meat fraction has been separated out, collected separately, and never mixed with the meat fraction.

Ideally, the waste streams should be collected separately and transported in a separate vehicle. Householders must be clearly instructed on what can and cannot go into each bin.

Where collection in separate vehicles is not possible, we would expect separation within the vehicle i.e. the vehicle should be split or partitioned, with the different waste streams kept in separate parts. Bags or other containers used for the collection must be clearly distinguishable so that they cannot be allocated to the wrong part of the vehicle by mistake.

There should be a visual inspection of waste containers at the point of collection. Bags or bins that are obviously contaminated with the wrong material should not be collected, or redirected to another waste stream. The householder should be informed why their container has been rejected (e.g. by flyer). Further visual inspections should also take place at the composting site itself.

Mixed collection of different waste streams in a single uncompact vehicle is unlikely to be satisfactory even if the wastes are collected in colour coded bags. If mixed collection is to take place, there would need to be very clear evidence of robust inspection checks, separation of waste streams and exclusion of split or damaged bags at a stage after transportation but before the final compost site.

Mixed collection etc. in a compacted vehicle presents too great a risk of cross-contamination and is not satisfactory.

### *3.32 Separation of fruit and vegetable waste on premises where meat or products of animal origin are handled*

Under ordinary circumstances, all catering waste from premises where meat or other products of animal origin are handled and which is intended for treatment in a biogas or composting plant must be treated in a premises approved by Defra (or 'home composted' where appropriate – see section 3.17 for details). Where the meat fraction and the non-meat fraction are collected separately (e.g. in different bins), the non-meat fraction may be considered to be meat-excluded catering waste. Meat-excluded catering waste must still be treated in an approved plant.

The only situation where non-meat fraction catering waste which originates on a premises where meat is handled can be sent for treatment at a facility that has not been approved by Defra (i.e. a site handling green waste that is operating under a licence, permit or exemption) is when the premises on which the waste originates operates a suitable HACCP plan, agreed with Local Authority Trading Standards as the enforcement body. This must ensure that meat and products of animal origin are considered as separate from other food, and must be stored and handled separately at all times so that cross-contamination from the meat stream to the non-meat stream cannot occur. In this instance, catering waste from the non-meat stream may be treated at a non-Defra approved site.

### *3.33 Vegetarian and Vegan Catering Waste*

Waste arising from a vegetarian premises will not contain meat but may still contain animal by-products (e.g. eggs and dairy produce) which are controlled by the Regulation. Waste arising from a vegetarian kitchen must therefore be considered to be meat-excluded catering waste, and will need to be treated in a Defra approved plant (or composted for use only on the premises under the home composting exemption).

Waste from vegan kitchens is in principle outside the scope of the animal by-products controls, but it is still important to ensure that separation from meat and products of animal origin is maintained (e.g. a restaurant or catering outlet may sell vegan food, but this does not mean that all its staff are vegan, and some may bring meat onto the premises for their own consumption).

## **4. HACCP – Hazard Analysis and Critical Control Points**

This section provides a brief overview of the Hazard Analysis and Critical Control Points (HACCP) approach, and how it relates to composting and biogas plants seeking Defra approval. It is not intended to be an exhaustive guide to HACCP principles, and for further details, you are recommended to consult The Composting Association's 'Hazard Analysis and Critical Control Points For Composters.'

### *4.1 Overview of HACCP*

Hazard Analysis and Critical Control Points (HACCP) is a process that identifies and evaluates and controls hazards which are significant for product safety. In practice, a HACCP plan is similar in function to the Standard Operating Procedures (SOP) which are used at other premises such as rendering plants which process animal by-products. Using a HACCP plan should formalise our approach to approving and inspecting composting and biogas plants, and provide a standard format for assessing how plants are operating.

The recommended HACCP approach is:

1. Conduct a hazard analysis

2. Determine the Critical Control Points (CCPs)
3. Establish critical limits
4. Establish a system to monitor control of each CCP
5. Establish the corrective action to be taken when monitoring indicates that a particular CCP is not under control
6. Document and record all procedures, corrective actions and verification results
7. Establish procedures for verification, audit and review to confirm that HACCP is working effectively.

## **4.2 Plant Validation**

Once an operator has established a HACCP plan for their system, the system must be validated.

Composting and biogas validations are based on individual systems, not individual premises. If there are two or more different composting or biogas systems on a single premises, each system would have to be validated separately. A single approval could however be issued to cover two or more validated systems on one site.

The validation process has two stages, which it is the operator's responsibility to ensure are fulfilled –

- (i) pre-validation of the system by the manufacturer or operator; and
- (ii) validation of the site by the operator, to demonstrate that the system is capable of being operated properly at the specific site.

### *4.21. Pre-validation of the system*

This is done by the plant manufacturer or operator. They provide evidence and data to demonstrate that the system can comply with the requirements of the Regulations. Ultimately it may be possible for manufacturers to sell pre-validated systems off-the-shelf to operators. However, in this initial phase of applications, we expect that each applicant will need to supply data to support their system. We would expect to receive data on the suitability of the system to treat different feed stocks, achieve the time/temperature parameters, its efficacy in destroying pathogens and the conditions under which it must be operated, including any seasonal variations. The evidence supplied by the manufacturer or operator will be assessed by the SVS, who will determine whether the system (or the information supplied) is sufficient.

### *4.22. Site validation*

Once the operator has obtained the manufacturer's verification for the system, and it has been accepted by the SVS, the operator will also need to demonstrate that the system can be operated on their particular site in a way which complies with the requirements of the Regulations. They will need to carry out a validation process to achieve this and, in the light of that experience, submit a HACCP plan listing the system's critical control points,

how they will be measured and monitored to demonstrate compliance, and what corrective action will be taken in the event that a critical control point fails.

New sites at the design and planning stages should submit site plans and details to the SVS at the earliest opportunity, in order to ensure that plant design is in accordance with the Regulations, and that potential problems may be identified and rectified prior to capital expenditure.

Once the SVS has received and assessed the HACCP plan and is satisfied that the system is in principle capable of meeting the requirements of the Regulations, they will inspect the site. The operator will need to demonstrate that they know how to operate the system properly, that the site itself is appropriate for the system, and that site management techniques ensure that the premises is complying with the Regulations. If the SVS is satisfied that the operation can be carried out in accordance with the Regulations, they will issue a time-limited approval which may include a provision to require the compost or digestion residues produced to be disposed of by an approved method such as rendering or incineration, or for material derived from catering waste, landfill. This will allow for proper validation of the site to be carried out. Alternatively, the approval may require storage of the treated material until the validation has been successfully completed, or until sufficient successful tests have been completed to demonstrate that the system is operating satisfactorily. The frequency of the tests will vary depending on the size of the operation.

Each batch produced during that site validation stage must be sampled and tested for *Salmonella*. Testing for *Enterobacteriaceae* is not required for treated catering waste although it is a requirement for compost or digestion residues derived from other animal by-products. (The European Commission is seeking a scientific opinion on whether these organisms are appropriate marker organisms for such plants and will review this requirement if necessary in the light of that opinion.) If the microbiological testing shows that the plant is achieving appropriate pathogen destruction in line with the Regulations, the plant can then be issued with a full approval. Where the testing shows that the treated material fails to meet the specified microbiological standards, the operator must notify the State Veterinary Service, the reasons must be assessed and corrective action taken (e.g. site decontamination) and the validation process continued. Where plants cannot comply, approval will be suspended or revoked.

Once a premises is fully validated and approved, we expect that it should be possible to consider a relaxation of the testing requirements, provided that the testing and monitoring of control points set out in the HACCP demonstrate that the site continues to comply with the requirements of the Regulations.

## **5. Annex VI and Schedule 1 Requirements**

Annex VI of the EU Regulation, and Schedule 1 of the national enforcing Regulations, set out the requirements for approved composting and biogas

premises. These requirements are set out in *italics* below. Commentary and clarifications are added in normal type.

*5.1 Part I of Schedule 1 of the Animal By-Products Regulations 2003 (NB – these standards are **additional** to those in the Annex VI of the EU Regulation)*

*1(1). There shall be (a) a reception area in which untreated animal by-products (including catering waste) are received; (b) an area in which vehicles and containers are cleansed and disinfected with adequate facilities for doing this; and (c) a clean area in which treated compost or digestion residues are stored.*

Ideally, the clean and unclean areas should be physically separated by a wall or barrier, to prevent raw/untreated material contaminating treated material in the clean end. A physical barrier may not be possible for all plants, but we would still expect some form of physical separation between the two areas. Suitable operating procedures must also be in place to ensure that the separation is observed. Where there is no physical separation such as a wall, site management, cleansing and monitoring controls will need to be considerably more rigorous, and this will be reflected in the HACCP plan. For the unclean area to be easy to clean and disinfect, we would expect it to be on a concrete hard standing, with the concrete maintained in good condition, and be adequately drained.

*1(2). The clean area shall be adequately separated from the reception area and the area in which vehicles are cleansed and disinfected so as to prevent contamination of the treated material. Floors shall be laid so that liquids cannot seep into the clean area from the other areas.*

This provision aims to ensure that the plant is constructed and operated in such a way that the treated material cannot be contaminated by untreated material, liquid from it, or by personnel or equipment that have been in contact with the untreated material. The clean area must contain only material that has been fully treated in accordance with the Regulations. Separation must be maintained at all times, and if any treated material passes back through the unclean area, it will need to be re-processed, or disposed of in accordance with the Regulations (e.g. by rendering or incineration for material derived from animal by-products; plants processing only catering waste could also dispose of material to licensed landfill). Material that due to system failure or any other reason fails to meet the treatment standards must be re-processed or disposed of, as above, in accordance with the Regulations. Untreated or incompletely treated material must not pass through the clean area. Should this occur, all material in the clean area must be re-processed or disposed of in accordance with the Regulations, and the clean area must be thoroughly cleansed and disinfected/steam-cleaned.

Essentially, premises should operate on a one-way flow basis i.e. material flows from the dirty end to the clean end. Details of the operation should be provided in a plan of the premises as part of the HACCP plan, submitted before the initial inspection visit by the SVS is undertaken. This should also

specify how staff and machinery may move around the premises. The HACCP plan must include provision for a full audit trail for all material that passes through a plant. The operator must know the full treatment history and destination of every batch of compost or digestion residue that leaves the premises. If any of the critical control points fails during the treatment of a batch of compost, the operator must be able to isolate that batch and re-treat it or dispose of it via an approved disposal route. Biogas plants must have equivalent fail-safe systems in place to avoid inadequate treatment.

*1(3). The reception area shall be easy to clean and disinfect and shall have an enclosed and lockable place or container to receive and store the untreated animal by-products.*

The prevention of recontamination of the treated end product is critical to the successful operation of these sites. The Risk Assessment shows that even if 1% of the end product has not been fully treated, then the potential risk to animals significantly increases (by a factor of 10,000).

We would normally expect the reception area to be fully enclosed i.e. in a building designed to prevent access by birds and vermin. But for a system where raw material is fed directly into the composting reactor on arrival, it may be sufficient for the reception area to be covered rather than fully enclosed, as long as the material is transferred immediately and birds etc. do not have access to it.

We recognise that a requirement for a building may be disproportionate for very small facilities and have provided that they may use bins or other covered, leak proof and lockable containers as a 'reception area'. However, it will be very important that the containers enable the material to be kept securely and protected from the elements and vermin before it is treated. If this cannot be achieved, a building will be required, as above.

*2. The animal by-products shall be unloaded in the reception area and either-*  
*(a) treated immediately, or*  
*(b) stored in the reception area and treated without undue delay.*

'Without undue delay' means as soon as reasonably practicable, in the light of the individual circumstances. This will normally mean within 24 hours and assumes that there is no access by birds or vermin. However, in plants where the reception is not fully enclosed, 'without undue delay' means immediately i.e. untreated catering waste must not be stored in the reception area unless the reception area is fully enclosed; in such cases, it must be unloaded directly into the closed composting reactor. Contingency plans must be in place to ensure that, if untreated material cannot be loaded into the composting reactor immediately, it is removed to another site for treatment or to an alternative permitted disposal outlet.

*3. The plant shall be operated in such a way that –*

- (a) *treated material is not contaminated by untreated or partially treated material or liquids arising from it; and*
- (b) *partially treated material is not contaminated with material which has not been treated to the same extent or liquids arising from it.*

4. *The operator shall identify, control and monitor suitable critical points in the operation of the plant to demonstrate that (a) these Regulations are complied with; (b) treated material is not contaminated by untreated or partially treated animal by-products or liquids arising from it; and (c) partially treated material is not contaminated with material which has not been treated to the same extent or liquids arising from it.*

These provisions require that plants operate to a HACCP plan and that the operator monitors the critical control points and takes the necessary remedial action in the event of a failure of any of those points. HACCP is discussed in Section 4 above.

5. *Containers, receptacles and vehicles used for transporting untreated animal by-products shall be cleaned in the dedicated area before they leave the premises and before any treated material is loaded. In the case of vehicles transporting only untreated catering waste and not subsequently transporting treated material, only the wheels of the vehicle need be cleaned.*

There must be facilities for wheel washing (this need not be elaborate, and could be as simple as a hosepipe and tap). We are not requiring internal cleansing and disinfection of vehicles which are only delivering untreated catering waste and then leaving the site. However, any vehicle which delivers other animal by-products, or any vehicle which is to be used for transporting any treated material off-site must be thoroughly cleansed and disinfected, or steam-cleaned, internally. Where disinfectant is used, we would recommend the use of one approved by Defra under the Diseases of Animals (Approved Disinfectants) Order. The concentration of the disinfectant should be at General Orders level as a minimum, or at the Foot and Mouth Disease or Swine Vesicular Disease level where this is higher.

On a routine basis, steam-cleaning may be used as an alternative to use of disinfectants. However, the operator will need to demonstrate that facilities to disinfect are available, and that the plant can be thoroughly disinfected, should it be required. Pressure-washing with cold water is not considered an acceptable alternative to disinfection.

## 5.2 *Chapter II of Annex VI of EU Animal By-Products Regulation*

(Some of the requirements in paragraphs 1-7 and 11-14 of Annex VI are described elsewhere in this guidance and are not repeated here.)

1. *Biogas plants must be equipped with a pasteurisation/hygenisation unit, which cannot be by-passed.*

This may be separate to the main digestion tank, or the digestion tank may be considered to be the pasteurisation unit itself. Although we would prefer the pasteurisation unit to be pre-digestion, this is not a requirement of the Regulation, and the pasteurisation unit may also be post-digestion.

A pasteurisation/hygienisation unit is not required for biogas plants that only treat material that has already been pressure-rendered, or for plants where material has been pasteurised elsewhere.

*2. Composting plants must be equipped with a closed composting reactor, which cannot be bypassed.*

The requirement for a closed composting reactor has been built into the treatment standards for catering waste in the Regulations. Open windrowing is not permitted. The only exception to this is when it is a secondary composting stage after the material has already been treated in-vessel in accordance with the Regulations.

'Closed' composting vessels may include housed windrows, provided that the building prevents access by birds and vermin. Other systems such as fabric-covered, aerated systems can also be approved as closed systems, provided birds and vermin cannot gain access, and the covering material is durable (i.e. as well as preventing access by birds and vermin, it is resistant to the elements, and will not rot, tear or otherwise leave composting material exposed).

*1 and 2. Pasteurisation/hygienisation units and composting units must have –*

- (a) installations for monitoring temperature against time;*
- (b) recording devices to record continuously the results of these measurements; and*
- (c) an adequate safety system to prevent insufficient heating.*

The operator needs to be able to demonstrate that all the material in the system has reached the required temperature standard for the required time. This does not have to be achieved by all the material at the same time; different parts of the system may be at different temperatures, but all the material in it must at some point achieve the required temperature for the required amount of time, without interruption. For example, in a windrow, the material at the edges and on the bottom of the windrow will be cooler than the material in the middle. The requirement for the windrow to be turned three times is designed to ensure that material at the edges (which will not achieve the required temperature while at the edge) reaches the required temperature subsequently. In a continuous system, the material may achieve different temperatures at different points in the system. The operator will need to be able to demonstrate that at some point in the system the required temperature is achieved, without interruption, for the required amount of time.

Under the HACCP, the time and temperature parameters will be a critical control point and monitoring and recording will be vital. It is also required by the Regulations. Subsequent microbiological testing will provide a further

check that the system is being operated properly, but is not a substitute for monitoring the time and temperature parameters. If a batch is not treated to the required temperature for the specified time at any stage (including a turn of the windrow), it must be reprocessed (or disposed of by another permitted route) and remedial action taken.

Ideally, the requirement for an 'adequate safety system to prevent insufficient heating' would involve an automatic fail-safe system or other engineering solution, but this is not mandatory. At the very minimum, we would expect inspection and site management routines as specified in the HACCP plan to detail temperature monitoring routines, and what remedial action is to be taken in the event of insufficient heating.

Clad and fully enclosed systems should be relatively straightforward to monitor. As the temperature will be lowest at the periphery, probes in the walls would be adequate. There would need to be a sufficient number of them to satisfy the SVS that they can clearly define how much of the system (for continuous throughput) is above the minimum temperature. This, combined with total residence time, allows a calculation (similar to ones used in rendering plants) to be made to show how long it is above minimum temperature. Manufacturers may also be able to provide information based on their own research and development.

Enclosed batch systems are in some respects simpler, insofar as it is easy to establish the residence time. The SVS then only needs to know when the minimum temperature is attained and the batch can be timed from there. However, since the material in a closed batch system is static, if there are any cold spots in the system, the material in that area will never reach the required temperature at any time. There would need to be sufficient temperature probes to guarantee no cold spots.

*7. Preventative measures against birds, rodents, insects or other vermin must be taken systematically. A documented pest control programme must be used for that purpose.*

The site must be fully enclosed e.g. by a fence and locked when it is unattended. The plant operator may choose to get a contract with a pest control firm, or may choose to use their own preventative measures. Whichever they choose, there must be no evidence that rats or other vermin and birds have access to the untreated catering waste. The operator must also be able to demonstrate that effective pest control measures are taken continuously or at regular intervals.

*8. Cleaning procedures must be documented and established for all parts of the premises. Suitable equipment and cleaning agents must be provided for cleaning.*

Cleaning measures to be taken on the premises, and their frequency, should be listed as a control point in the plant's HACCP plan. They must be effective and thorough.

9. *Hygiene control must include regular inspections of the environment and equipment. Inspection schedules and results must be documented.*

We would expect plant operators to carry out visual inspections of their premises on at least a daily basis and to take any corrective action immediately. A more formal inspection of the premises should also be carried out on at least a weekly basis to ensure that the equipment is functioning properly and that the hygiene measures are being met. The inspection would check the critical control points at the plant (e.g. the reception of the untreated material, separation between the clean and dirty area). However, the SVS may decide that certain critical control points need daily monitoring (e.g. temperature probes, ventilation controls). The plant's HACCP plan will set out frequency of monitoring and inspection for identified control points. The operator must be able to provide documentary evidence that the compliance checks agreed in the HACCP have been carried out.

10. *Installations and equipment must be kept in a good state of repair and measuring equipment must be calibrated at regular intervals.*

Ensuring that the time/temperature standards are being met is vital, and we would expect measuring devices to be calibrated at least every three months by a suitably qualified independent person.

## **6. Sampling of digestion residue and compost**

Regulation 19(1) of the Animal By-Products Regulations 2003 states that sampling intervals will be specified in the approval. This section describes the standard procedure for sampling which will normally apply. However, there may be circumstances where the inspecting SVS official concludes that the standard sampling procedure is not appropriate to a particular site or system. If this is the case, the SVS official will notify the operator, explaining how and why the sampling procedure should be changed.

### *6.1 Sampling point*

Sampling should be carried out at any stage after the last temperature-recorded phase required by the plant approval. It should take place during storage, or on removal from storage. For a biogas plant, this may be possible during the digestion stage, depending on the type of system.

### *6.2 Batches*

The definition of 'batch' in Annex I of 1774/2002 is given as, 'a unit of production produced in a single plant using uniform production parameters – or a number of such units, when stored together – and that can be identified for the purposes of recall and re-treatment or disposal should tests show that to be necessary.'

For a batch system therefore, a batch would normally simply be the contents of one vessel (or these contents could be stored together as one larger batch).

For continuous systems, a batch will be considered to be a week of continuous production taken from each vessel being validated (i.e. sampling will take place on a weekly basis in situations where every batch is required to be sampled).

For housed windrow systems, a batch will be considered to be all of the windrows in a single building. A batch sample should contain an evenly mixed aggregate from all of the windrows. Samples contributing to the aggregate should be taken at intervals along each windrow.

Different systems or additional windrow buildings on the same site will require separate validation, but multiple, identical treatment vessels located on the same site may not require individual validation. The inspecting veterinary officer will advise whether individual validation will be required, taking into account site-specific parameters such as number of vessels, throughput etc. In premises with multiple treatment vessels, samples should be taken from a proportion of the vessels such that the samples can be considered to be representative.

### *6.3 Site Validation*

#### *(i) Initial validation stage*

During the initial stage of validation, every batch (as defined above for the various types of premises) must be sampled.

Where possible, sampled batches must be retained on-site throughout the initial validation stage. The batches do not need to be housed. Where it is not possible to store the batches on-site (e.g. due to space limitations), they may be stored at separate premises, subject to agreement from the inspecting SVS officer that the batches remain identifiable and traceable, and that biosecurity arrangements are sufficient. The initial validation stage is completed once four consecutive batches have successfully passed the microbiological testing.

#### *(ii) Positive release stage*

After four consecutive clear results have been obtained, the SVS official will authorise the second validation stage, or 'positive release stage'. During this stage material from the initial validation stage, and subsequent material which passes microbiological sampling, may leave the site or agreed storage point, and be spread on non-pasture land, or otherwise disposed of in accordance with the Regulations. The operator will receive written notification from the inspecting SVS official that material that has passed sampling may leave the site. Full records must be maintained of batch identity and location.

During the positive release stage, sampling of consecutive batches must continue until three months of sampling have been completed with clear results.

A total of four samples must be taken by an SVS inspector as part of the validation process. The first of these will be one of the four samples taken during the initial validation stage, prior to positive release. The others will be taken during the positive release stage. Plants with very low throughput may therefore take longer than three months to validate.

Following successful completion of the positive release stage, and four samples have been taken by the SVS, the microbiological testing element of validation will be deemed successful and the plant will be eligible for recommendation for full approval, subject to other inspection parameters having been found satisfactory. The SVS must revisit the site for a final assessment, prior to upgrading from provisional to full approval.

Samples taken by the SVS during the validation period should be sent to VLA Preston (Barton Hall, Garstang Road, Barton, Preston PR3 5HE) for England and Wales, or VLA Lasswade (Pentlands Science Park, Bush Loan, Penicuik, Midlothian EH26 0PZ) for Scotland. Samples taken by plant operators should be sent to any laboratory authorised for the purpose under the EU Regulation. Sampling costs will need to be met by the operator. SVS staff will consult with laboratory staff about the amount of material required to fulfil the test results required by the Regulation (Annex VI, Chapter II Section D) and the receptacle/packaging requirements. Clean/sterile receptacles should be used and hygienic practices employed.

#### 6.4 *Routine sampling*

After full approval has been recommended, the SVS officer will agree the ongoing sampling frequency with the operator. Normally this will be one sample per month or 25% of batches from each separate system or windrow house on site, *whichever is the least*. There must be a minimum of one sample per system/house per quarter.

Routine samples should be consigned to a Defra approved laboratory for testing in accordance with the requirements of the European Regulation, at the operator's expense. The SVS will also take samples on a quarterly basis, normally as part of the routine quarterly inspections. Samples taken by the SVS will be paid for by Defra.

Samples from plants treating animal by-products must be tested for Salmonella and *Enterobacteriaceae*. Plants operating at national standards treating only catering waste will need to test only for Salmonella. If a plant operates to the EU standard but treats only catering waste, an approval can be issued permitting the premises to accept catering waste but not animal by-products. In this instance, the operator need sample only for Salmonella. If the operator wishes at a later date to treat animal by-products as well as, or instead of, catering waste, the approval will need to be amended and re-

issued, and the sampling regime will involve both *Salmonella* and *Enterobacteriaceae*.

Some premises may wish to have an on-site laboratory approved under the Regulations (see below).

### 6.5 *Sampling after a positive culture result*

If a positive culture result occurs during validation, the cause will be investigated and the sampling validation period must restart from the beginning after the last positive result received. Permission for the operator to release sampled batches may be reviewed by the SVS officer.

If a positive culture result occurs after successful validation, the sampling frequency will be reviewed by the SVS officer once the cause has been investigated.

### 6.6 *Approved laboratories*

Laboratories which wish to test compost or biogas residues, or processed animal protein, to check compliance with the microbiological standards required by the EU Regulation and national Regulations will need approval under the Animal By-Products Regulations 2003. They may apply for approval to test for the presence of –

- *Clostridium perfringens*;
- *Salmonella*; and
- *Enterobacteriaceae*.

Operators of composting and biogas plants will only require tests for the latter two markers. Laboratories will need to carry out the tests in accordance with the methods specified in Schedule 3 of the Animal By-Products Regulations 2003 or by a recognised alternative. The laboratory will also be subject to inspection before approval is given. Approvals are free of charge.

## **7. Other requirements for composting and biogas plants**

### 7.1 *Access by livestock*

The national Regulations make it an offence to bring any catering waste onto any premises where any farmed animal, or any other ruminant, pig or poultry, is kept unless it has been treated in an approved biogas or composting plant, or processed in an approved processing (rendering) plant.

A similar provision applies to the bringing of other animal by-products onto premises where such animals are kept, although there is an exemption to allow for vehicles which collect fallen stock.

No approvals will therefore be issued for composting or biogas plants which are located on livestock premises or on other premises where ruminants, pigs or poultry are kept.

It is also an offence to allow ruminant animals, pigs and poultry (including wild birds) to have access to animal by-products, including catering waste, unless they have first been treated in an approved biogas or composting plant, or processed in an approved processing (rendering) plant. However, it is not an offence to allow wild birds to have access to material in a composting plant during the secondary or subsequent phase of composting.

### *7.2 The use of external heat in approved premises*

The use of external heat in composting or biogas plants is permissible, provided that the time/temperature treatment standards set out in the Regulations are met. The use of external heat in a system does not preclude plants from the requirement for biological degradation e.g. composting plants employing external heating must nevertheless be producing compost in accordance with Environment Agency/SEPA requirements. A plant that simply applies external heat to animal by-products or catering waste is not a composting plant and cannot and will not be approved as such.

### *7.3 Split-site premises*

We would normally expect that a composting or biogas plant is on a single site. However, it may be possible for a single plant to be on more than one site (e.g. a composting plant where the composting is done on one site, before transfer to a separate site for maturation and storage). In instances like this, the plant would be considered to incorporate both sites, and a single approval would be sufficient. Any plant operating in this fashion will need to ensure that their HACCP plan covers transportation of material from one site to the other, so that there is no cross-contamination of material. The operator will also need to keep consignment records for material travelling between the two separate sites.

There may also be situations where more than one site is sending composted material to another site e.g. several operators may carry out the composting phase of treatment on separate premises, but the resultant material may all be sent for maturation and storage at a separate common site. In a situation like this, the individual operators would be approved to compost the material at their own site and to send it to the nominated common site. The nominated site would be the only permitted destination site. Separation of batches and full traceability would need to be maintained, and measures to prevent cross-contamination would need to be addressed by the HACCP plan. If the central site were to shut down, all the operators sending material to that site would

need to find alternative destination sites to send material to, which would need to be agreed with the SVS.

Alternatively there may be situations where one site is composting material which is then sent to several different sites e.g. for maturation. Again this could be covered by one approval and each site to which the material could be sent would have to be named in the approval. Consignment records would apply as above.

A plant operating as a split site is essentially considered to be a single premises. This means that although the plant as a whole must conform with the Regulations, each individual site does not separately have to meet every requirement of the Regulations. Consider for example a plant split such that one site receives and composts material, which is then matured on a second site. The second site does not have to have a reception for receiving raw material (as this is present at the first site, and the second site will not receive raw material). However, it would not be unreasonable to expect cleansing and disinfection facilities to be available at both sites.

#### *7.4 Record keeping and consignments of compost or digestion residues from the premises*

The operator of a biogas or composting plant must keep records of animal by-products and catering waste which are received on the premises. The records must include the date of delivery, the quantity and description of the material and the name of the haulier. For catering waste, the records must also indicate whether measures were taken at source to ensure that meat was not included in the catering waste.

Operators must also keep records of the dates of treatment, quantity and description of the material treated, the results of the checks at the critical control points and sufficient information to show that the material has been treated to the required parameters.

Records must be kept for two years.

#### *7.5 Labelling of consignments*

If consignments of compost or digestion residues are for use on agricultural land, the operator must ensure that they are labelled or accompanied by documentation that draws the recipients attention to the requirements of Regulation 11.

#### *7.6 Definition of pasture land*

The EU Animal By-Products Regulation prohibits the application of compost and digestion residues to pasture land. Regulation 11 of the national Regulations specifies that pasture land is land that is intended to be used for grazing or cropping for feedingstuffs following the application of compost or digestion residues within -

- (a) two months (for pigs); and
- (b) three weeks (for other farmed animals).

The land must not be grazed during those periods, nor is cropping for feeding permissible during that period. Thus the land could not be grazed within the timescales listed, but cutting for hay or silage production would be permitted during that period.

Regulation 39 requires farmers to keep records of the date, quantity and description of compost or biogas residues brought onto the premises, the land to which it is applied (and the date) and the date on which ruminants, pigs or poultry first have access to the land after application.

## CATERING WASTE

The introduction of the EU Animal By-Products Regulation changed the definition of catering waste. This Annex sets out the differences between the EU definition of catering waste which has applied from 1 May 2003, and the previous definition of catering waste under the now revoked UK Animal By-Products Order 1999.

### 8.1 Definition of catering waste as from 1 May 2003 – EU Animal By-Products Regulation

4. Following the application of the EU Animal By-Products Regulation the definition of catering waste is, “all waste food including used cooking oil originating in restaurants, catering facilities and kitchens, including central kitchens and household kitchens”. Material which used to fall within paragraphs (b) and (c) of the previous ABPO 1999 definition of catering waste (as described below) is no longer deemed to be catering waste, but is now considered to be Category 3 animal by-products.

5. Nevertheless, we have secured a transition period that will allow certain types of former foodstuffs to be transported and treated as catering waste until 31 December 2005, rather than as another type of Category 3 animal by-product. Until 31 December 2005 this allows the following material to be treated as catering waste (i.e. to national standards) if it is treated in a biogas or composting plant -

- (a) material from food manufacturing premises which is currently considered to be catering waste under the Animal By-Products Order 1999 (i.e. waste from the production of products which are not intended to be cooked before they are eaten);
- (b) former foodstuffs from retail outlets, providing that suitable measures are in place to ensure that raw meat is excluded from the foodstuffs.

6. The transition period does not apply to raw meat or waste from the production of products that require further cooking from food manufacturing premises as this material is already considered to be an animal by-product under the Animal By-Products Order 1999. Nor does the transition period apply to raw meat from retail outlets. Such material must be treated as an animal by-product.

7. In 2003 we established a Task Force, comprising representatives of the relevant industries and the enforcement bodies, to develop an implementation plan including guidance on how the requirements could be applied in a proportionate manner. This guidance is available from the Defra website at:

[http://defraweb/animalh/by-prods/FormerFoodstuffs/guidance\\_dispffs.pdf](http://defraweb/animalh/by-prods/FormerFoodstuffs/guidance_dispffs.pdf)

## 8.2 Previous definition of catering waste – Animal By-Products Order 1999

**NB This is for comparative purposes only and this definition has been superseded by the definition in 8.1 above**

1. Catering waste is defined as the following products when they are no longer intended for human consumption -
  - (a) waste from catering and domestic waste;
  - (b) waste from the production of products which are intended to be used for human consumption without further cooking; or
  - (c) waste from the production of bread, cakes, pasta, pastry, pizzas and similar products (whether or not intended to be used for human consumption without further cooking).
2. Material may fall into one or more of the parts of the definition. Each part is described in more detail below -

(a) *Waste from catering and domestic waste*

We consider that waste from catering is waste from premises on which food is produced for immediate consumption. This part of the definition therefore includes waste from restaurants and sandwich bars but not waste from retail outlets such as supermarkets. It may also include waste from premises such as sandwich factories (which are producing food for immediate consumption) but would not include waste from food factories producing other products for retail sale.

Domestic waste in this context means food waste arising from individual households.

(b) *Waste from the production of products which are intended to be used for human consumption without further cooking*

In drafting the Order, there was a need to make a clear distinction between the definition of an animal by-product and that of catering waste. There was also a need to prevent the feeding of pig slaughterhouse waste as swill, while permitting waste from as many food manufacturing premises as possible to continue to be fed to pigs as swill.

We concluded that the distinction should be made between cooked and raw meat. Thus, for example, slaughterhouse waste, waste from cutting plants and butchers' shops should be considered to be animal by-products. Waste from food factories producing cooked products should be considered to be catering waste.

This part of the definition therefore permits waste from food factories to be considered as catering waste if the waste arose during the production of products intended to be used for human consumption without further cooking. This would include all waste (cooked and raw) which arose during the production process. It would not, however, include any products which were not used in the production process (i.e. unusable or surplus meat); these would have to be disposed of as animal by-products.

(c) *Waste from the production of bread, pastry, pizzas, etc.*

This paragraph refers to waste from the production of bread, pastry, etc. It seems unlikely that the production of any of these products, other than pizzas, would result in a product containing meat. For example, the production of a steak and kidney pie entails the production of the pastry, the production of the filling and then the combination of the two. The waste from the production of the pastry is catering waste within the terms of this paragraph. However, the addition of the steak and kidney to the pastry is not part of the process of producing pastry. It can therefore only be considered as catering waste if it falls within the scope of part (b) of the definition i.e. if it is waste from the production of a cooked, not a raw, pie.

### **Disposal routes for catering waste**

3. Article 19(4) of the ABPO states that the Order only controls catering waste which contains or has been in contact with animal carcasses, parts of animal carcasses (including blood) or products of animal origin (other than milk, eggs, rennet or melted fat which have been incorporated into another product).