## REA Organics Recycling Group response to SEPA's consultation on Technical Guidance BAT for Composting

**Overview of the REA**

The Organics Recycling Group (ORG) of the Renewable Energy Association (REA) is pleased to submit this response to the SEPA in response to their consultation on the development of BAT for composting. The ORG have circulated and highlighted this consultation to our members in an attempt to gather their views on the document. We submit these comments based on feedback from some of our members along with our experience of working with the composting industry across Scotland and with different technologies for 13 years.

The REA is a not-for-profit industry association that represents a wide variety of organisations, including organic resource management companies, project developers, fuel and power suppliers, investors, equipment producers and service providers. The ORG is one of the twelve sector groups within the REA and represents a wide range of operators who manage composting, anaerobic and aerobic digestion facilities, mechanical and biological treatment and in-vessel composting facilities within the UK handling a wide range of biodegradable feedstocks. Members range in size from major multinationals to sole traders. There are around 700 member companies of the REA, making it the largest renewable energy trade association in the UK.

We have made some general comments below on the overall objective and scope of the document and specific comments on the technical detail in some sections.

# General comments

**Objective of BAT guidance**

The document states that it aims to provide clear guidance on what SEPA considers to be BAT for composting. Whilst the document has the potential to be a useful guidance document we are concerned that existing installations will have conditions imposed on them to comply with the requirements. In essence this means that SEPA are changing the way they regulate and are likely to introduce permitting conditions that are no longer focused on an outcome or objective (e.g. no odour beyond the site boundary) but that are

prescriptive (e.g. sites must have windrows of a certain size). It also leaves little flexibility at the installation level to account for different geography, location, cost and benefits.

We understand that whilst schedule 3 is intended as guidance for SEPA staff, there is a concern that it will effectively become a regulatory requirement e.g. for windrow size, C:N ratios, temperature maintenance etc and local officers will expect sites to comply with everything outlined in this section. It would be better if this was a stand-alone document as guidance and a separate document outlining what is considered BAT. If this is not possible it should be made very clear that Schedule 3 will not be imposed as conditions in a licence or permit.

Many of the requirements outlined in the document cannot be meaningfully assessed in terms of benefits, control of emissions or cost to the operator. In this respect, it is not possible, nor appropriate to refer to these as BAT.

**Commercial impacts**

We understand that the proposed technical guidance on BAT will be in place in Scotland until the Waste Treatment Best Available Technique Reference Document (WT BREF) review is completed and the BREF published. We understand this is likely to be in 2016 or 2017 but this may be further delayed and not guaranteed to happen within this timeframe. Once the review is complete then SEPA will be required to enforce the BAT conclusions set out in the new Waste Treatment BREF. There is concern from industry that there is a risk that companies may make investments to comply with the SEPA BAT guidance which will become no longer relevant when the WT BREF is published. We could end up in a situation where companies who have made every effort to invest in their plant and comply with BAT end up unfairly penalised financially. It would be exceedingly difficult to attract investment against the background envisaged whereby the Regulator could tomorrow bring out a new BAT standard and render the techniques and capital equipment permitted and purchased today obsolete and subject to replacement or major alteration as is being put forward in this document.

The requirements in the technical guidance do not seem to include a review of the commercial impacts and in particular the financial implications to the SME community which is the predominant one pervading the organics recycling industry in Scotland at this time. Whilst we understand that SEPA's aim is to protect the environment, the current economics of composting and gate fees in the composting industry could mean that complying with the requirements of the technical guidance are uneconomic and will results in companies ceasing to compost. Operating costs would rise significantly leading to site closures and large increases in gate fees for those able to raise sufficient capital investment for continued operation.

The cost of getting all the sites to comply with these requirements would be substantive and this cost would need to be borne either by the local authority through higher gate fees and

or an increase in the price paid for the finished product. This would do little to promote and grow confidence in the sector and encourage subsequent use of compost in a wide range of markets.

**Technical details**

BSI PAS100 is the current industry standard for composting in Scotland. We support the proposal in 4.8 that producing compost to PAS100 is BAT. It is currently part of SEPA's end of waste criteria under most circumstances and generally a pre-requisite for Local Authority contracts to demonstrate material has been recovered fully.

For each process or grade of PAS100 compost, the operator is required to devise and validate Standard Operating Procedures (SOPs). In order to meet the specification, the level of detail required in the SOPs is very similar to that contained within the BAT Consultation Document. PAS100 is not just an end product standard but a Quality Management System for the entire composting process.

It should be noted that except for a few key parameters such as monitoring requirements or sampling frequency PAS100 is not prescriptive. It states the desired outcome such as pathogen kill, stability or traceability and it is the operator's responsibility to devise systems, procedures and utilise technologies that comply and to demonstrate this. The operator must also identify hazards and critical control points in the process that may affect the outcome.

Initial compliance with the standard is in the form of validation of the process by analysis of multiple consecutive batches until the regime achieves 3 consecutive passes of the full analytical suite of tests. If at any point there is a failed parameter the operator must investigate the Critical Control Points (CCP) that may influence this parameter and revise the process until consecutive passes are achieved. An example of this, as mentioned in the Consultation Document, may be windrow size as a CCP for sanitsation as validated through pathogen kill, stability tests and growth trials.

After the process has been validated the site will have an inspection audit from an independent certification body to assess compliance to the certification scheme requirements. This includes SOP and HACCP scrutiny to ensure that a system is in place that satisfies the required outcomes of the specification, along with checks of monitoring, record keeping, traceability and a site inspection including a visual assessment of compost quality. Only when all the requirements are met, is certification achieved.

Continuing compliance with PAS100 is in the form of annual audit, site inspection and regular product analysis. Any change to the processing regime (as defined by the processes PAS100 Standard Operating Procedures) such as windrow size, introduction of aeration, turning frequency, temperature management etc that would be needed for most sites to comply with all the requirements of this document, is likely to trigger a requirement to re-

validate the process under PAS100 as these are considered to be Critical Control Points that may affect the quality and consistency of the product.

During the re-validation stage the output (compost) would no longer be considered PAS100 compliant until 3 consecutive passes have been obtained for the analysis parameter likely to be affected by the change, and this approved by the certification body. Any compost leaving the site after the change was implemented would be non-compliant and regarded by SEPA as having waste status.

The introduction of such prescriptive guidance as contained in the document would essentially result in requirement for most if not all PAS100 composters in Scotland to revalidate their process and procedures, possibly multiple times. Whilst most composters would already be broadly compliant with some of this guidance we are not aware of any current facility that would even come close to complying with all of the points. The cost of this re-validation is not insignificant, we can provide further details if needed.

**Other general comments**
There is no mention of other relevant legislation, for example the Animal By-Product regulations and in some instances, complying with the mandatory requirements of the ABP regulations may well be seen as non-compliant with some aspects of the proposed BAT guidance.

# Comments by Schedule:

## Schedule 1

1.7 – We support the proposal to standardise conditions across the sector and the acknowledgement that the balance of costs and benefits may differ at installation levels. However, there is the potential for this to result in an inconsistent approach.

The timescale for implementing this is unrealistic given the potential impact of the document. Some existing sites may be required to make significant changes (additions or alterations) to their site or process which may result in a need to modify planning permission and source funding to do so. The capital expenditure required in retrofitting facilities and plant is much greater than that of a new build, it is not reasonable to deal with such requirements with the same approach as new builds. In overall terms it is not reasonable or practicable to issue permits and approve planning consents on one basis then to make onerous and expensive stipulations on quite a different basis.

# Schedule 3

### 3.1.1. Pre-acceptance and acceptance of waste

The current WT BREF contains information on pre-acceptance and acceptance of waste that sites already must comply with, we are not clear of the benefit of having additional guidance from SEPA.

We are concerned about the statement 'A system of diversion should be established allowing for rejection of malodorous waste'. The nature of feedstocks to the composting process mean that inevitably there are malodorous wastes that arrive on some sites (particularly food wastes into IVC) and the majority of these sites have appropriate systems in place to deal with these materials in a way that the odour does not escape the site or cause nuisance. It should be remembered that it is not unusual for food waste to be stored up to two weeks in the household bin where it has been commingled with green waste and particularly in the summer this will inevitably lead to potential odour challenges when dealing with these feedstocks. If this sort of material was rejected, where will it go, given that all sites will have to comply with the BAT requirements.

It is stated that 'commercial food wastes and industrial sludges where there is a high degree of variability will require more rigorous testing against strict quality criteria'. We think that this could be interpreted that all commercial food wastes and industrial sludges are highly variable when in reality many materials in these waste streams are fairly consistent and very suitable for composting. In addition the degree of testing is not defined.

A definition of 'putrescible' is needed.

The requirement to 'incorporate putrescible materials into the composting process within 24 hours' may be problematic for some sites and this requirement should depend on the reception and waste storage facilities at the sites and the likelihood of environmental emissions from the material. Where suitable contained reception and storage facilities are in place, then the material could be stored for longer than 24 hours without causing a nuisance or any adverse environmental impact. We suggest that 48 hours would be more reasonable. This also allows for some contingency for breakdowns or significant increases in volumes of material supplied for treatment. Often there is not a suitable alternative treatment facility nearby which may result in material being stored inappropriately, accepted by a site in breach of their permit conditions or going to landfill.

The requirements in this section whilst appropriate for many standard consistent waste streams, may be unworkable and contradictory for some one-off waste streams. Complying with the first requirements for contracts and upstream audits may result in delays (analysis of samples of waste may take days) that mean the waste material fails to comply with the latter requirements. Then there would be an issue of where the (now malodorous waste) can be treated and where it should be diverted to. We would recommend that all sites have

a clear input specification and acceptance procedure to allow them to make judgements on the suitability of new waste streams.

**3.1.2. Pre-processing**

The requirement for waste to be transported from the producer to the treatment facility without undue delay is problematic. Whilst this is good practice for odour management, it is often beyond the control of the composter and depends on the waste producer and waste collector.

**3.1.3 Sanitisation**

There are many facilities that have time and temperature requirements under the ABP regulations. Complying with the ABP regulation requirements may mean that a site would be unable to comply with the requirements in this section of temperatures no higher than 70$^{o}$C.

**3.1.4 Stabilisation**

The temperature range may be difficult for processes that have a short sanitisation phase and material is still very active when starting the stabilisation phase. We acknowledge that high temperatures can generate problems but feel a range of 43-70$^{o}$C would be more appropriate.

The actions needed to reduce temperatures in this phase may result in increased likelihood of emissions, e.g. turning or forced aeration, purely to lower temperatures when other parameters are performing well is likely to increase the risk of odours, bioaerosols and dust being generated.

The time period for this phase is not realistic. Most sites have a shorter sanitisation phase and a longer stabilisation phase, with the overall shortest composting period being 6 weeks. We feel it would be better to give a time scale for the 'actively managed composting' of a minimum of 5 weeks. The required degree of stability of the compost will depend on the end market.

**3.1.5. Maturation**

Not all sites have a defined or managed maturation phase and this is not required in PAS100. We feel this should be highlighted in this section that managed maturation is optional and will depend on the end use of the compost. In reality most sites screen their compost before temperatures fall below 45$^{o}$C so do not have a managed maturation phase.

**3.1.6. Post processing**

Not all sites do a combination of screening, blending and bagging, many sites only screen the material and sell it in bulk without any amendment. Whilst oversize is useful as an amendment material, it is important that any residual contamination is removed prior to re-using the material.

**3.2.2. In-vessel composting**

The sentence 'most involve a short period of reactor sanitisation followed by treatment in an open windrow' is not correct. Many IVC processed have a housed windrow system following the IVC treatment. It would be better to state 'most involve a short period of reactor sanitisation followed by treatment out with the in-vessel system'.

**3.3. Key parameters**

**C:N ratio** is very narrow range and composting out with this range can occur effectively if the other parameters are within optimal ranges. 20:1-35:1 would be more appropriate. Some of our members compost effectively at 20:1 C:N ratio particularly for food waste and comply with permit conditions relating to odour etc.

**Moisture content** typical levels are on the high side and typical levels would be more in the range of 40-60%. It should also be clarified that around 50-60% is the optimal level at the start of the composting process and typically compost nearing the end of the process is likely to nearer the lower end of the range which is desirable for effective screening.

**Oxygen content** of a newly turned windrow can fall below the recommended level due to high oxygen demand and will take some time to rise back up when diffusion is re-established. This fluctuation could result in oxygen levels below 5% for a temporary period immediately following turning. The required range should apply to steady state conditions only and acknowledged that levels may drop lower than this following turning.

**Process temperature and distribution** the temperature range conflicts with what may be required under other legistation (ABPR). 43-70$^{o}$C would be more appropriate with acknowledgment that temperatures are likely to exceed 70$^{o}$C for a short period for sites complying with ABP regulations to guarantee that they achieve the desired 70$^{o}$C within the entire composting mass.

It is also a recommendation in PAS100 that material is composted at 65$^{o}$C for 7 days for sanitisation which inevitably means that in order to ensure that all the composting material meets this requirement, that there are some parts of a windrow or IVC that has higher temperatures. We understand the need to avoid excessively high temperatures but would not like this guidance to result in SEPA officers assuming that any composting material at over 65$^{o}$C is either no longer composting properly or is at high risk of odour generation.

**Windrow construction**

It should be acknowledged that the windrow size will also be influenced by the available space. Dense or wet materials can be blended with drier materials to enable them to achieve the appropriate porosity to be managed in a 'normal' sized windrow rather than a small windrow. Laying a bed of oversize at the base does aid passive aeration but may not be possible when turning a windrow, nor necessary for material with good structure and porosity.

Some of the dimensions in this section are unrealistic. Having a limit on the total volume of material in a windrow, effectively limits the length of the windrow. There seems to be no reason for this and the length should depend on the site and management of the windrow. In addition the height and width restrictions are considerably smaller than many sites typically use currently. Some of our members have windrows that are 6 metres high and 15 meters wide and produce good quality PAS100 compost without causing odour issues. We would be interested to know if there is evidence to demonstrate that this is not effective composting.

The width and height suggested in the document would be difficult to achieve in practice and a windrow that is 3 metres tall is likely to be 6-8 metres wide at the base due to the way the compost settles in a stack. One of members uses the rule of twice as wide as high for constructing windrow. Windrow size will reduce during the composting process and typically a reduction of about 0.5 metres (on a 3.5m high windrow) is seen during the first week.

There are a number of factors that influence effective composting (as detailed in the guidance) and windrow size plays a part in this. The size will vary from site to site and depend on feedstock, porosity and structure. We feel that demonstration of aerobic conditions (or a lack of odour problems) should enable a site to construct larger windrows and there should be no restrictions on what windrow size is BAT.

The requirement for a clear space between the base of each windrow is a concern to many of our members who do not currently employ this practice. Few sites have the space to enable them to do this. The traceability and control of batches requirements of PAS100 can still be demonstrated with windrows that are touching at the base. Again we would prefer that a requirement to demonstrate aerobic conditions would be more appropriate than requiring a gap between windrows.

We support the requirement for surface water and leachate to drain away preventing cross contamination and most sites achieve this by having the sanitised material draining to the unsanitised area.

**3.5 Bioaerosols**

Control of moisture is also an important primary abatement measure.

**3.6. Odour**

Odour at high temperatures is only significant when the moisture conditions are not correct.

**3.6.2. Recommended operational conditions for biofilters**

The outlet air temperature is unlikely to exceed the input air temperature of a biofilter. The media moisture content is quite high and 70% would be a more appropriate upper limit.

# Schedule 4

### 4.1. Waste Acceptance

4.1.2 The requirement for a comprehensive characterisation of each new waste enquiry is an onerous requirement and we feel this would be more appropriate for each new waste type to be treated rather than for the same sort of waste but from a different source.

4.1.5 Validation monitoring is very difficult to comply with whist achieving other objectives required by the document. e.g. treating the material without undue delay.

4.1.9. 48 hours is a more realistic timeframe. Within 24 where possible but as a maximum 48 hours.

4.1.12. This is not clear if it refers to the waste (with the contamination) or the contamination which has been removed from the waste. If the latter, then 5 days is not long enough as most sites would fill a skip and transfer off site when full and requiring anything else would be costly with no discernible benefit.

4.1.13. Again 48 hours would be more realistic.

### 4.2 Tracking and Traceability of Waste

4.2.1. We support this in principle but given the loss of mass during the composting process, there is always likely to be an element of calculations to this, especially for the total amount of waste on site at any one time. If a site can demonstrate their typical loss throughout the process then this should be sufficient, otherwise there would be multiple needless movements of material over the weighbridge to obtain an accurate figure.

### 4.3. Process Control and Management

4.2.1. Moisture is a key parameter that should be monitored along with temperature at a minimum. Monitoring both temperature and moisture is a requirement of PAS100. Oxygen monitoring can give useful information to a site operator about the respiration rate within a windrow and for sites who are having issues, oxygen is a useful parameter to measure. Some members think that monitoring oxygen is unnecessary for certain processes and monitoring temperature and moisture along with careful feedstock preparation and management of the process is sufficient to ensure efficient composting. It is for this reason that we recommend that temperature and moisture are required as a minimum with oxygen as a recommendation only.

4.3.3. Gaps between the base of windrows is problematic for some sites and felt to be unnecessary. Windrows located to allow the flow of air through the pile should be BAT with the onus on the operator to demonstrate this.

Provision of kerbed impermeable hard standing will entail a number of sites needing to lay a large amount of concrete for windrows processing green waste. This is substantial investment and we would encourage this requirement to be for certain areas of the site only, i.e. for reception and shredding of the incoming material but not for the entire windrowing process and storage of finished products. There is a particular concern given that this guidance will become best practice for waste management licenced sites who may be fairly small processing a small tonnage of green waste material. We would encourage this requirement to be site specific, i.e. the need for impermeable surfaces to be judged depending on the site, their drainage plans and the material being composted. Impermeable hard standing for many green waste composting sites makes the process unviable commercially.

Requiring leachate collection to have a re-circulation system seems too prescriptive as many sites have no requirement to irrigate windrows, especially open sites where they get adequate moisture from rainfall. This could be encouraged where appropriate but not required.

**4.4. Process buildings**

4.4.1. This requirement is acceptable for new sites but for existing sites who may already have sensitive receptors within 250m the requirement to enclose the process, use negative aeration or extractive ventilation should be made on a site by site basis. Bioaerosol monitoring should be used to determine the likelihood of the site causing a nuisance and the need for additional measures based on the results from the monitoring. Bioaerosol management plans could also be utilised to ensure that the site is managed in such as way that emissions are restricted.

4.4.4. The requirement for ALL process buildings to be air tight and held under negative pressure will require substantial change for some member's sites. This requirement is acceptable for pre-treatment and sanitisation buildings where there is most likelihood of emissions but maturation buildings should not be included in this requirement. Material at the stabilisation or maturation stages generally does not have the same potential for odour emissions and benefits from air flow around the material.

4.4.10. Odour masking or neutralising sprays may be useful as short term control of an incident.

**4.5. Impermeable Paving**

As before we feel the requirement for all composting activities to take place on impermeable hard standing is too onerous and this requirement should either be limited to reception and shredding areas only (where there is the highest potential for issues) or be material (feedstock) specific.

**4.7. Odour Abatement**

4.7.1. This should be changed to say all contained odourous areas should be vented to appropriate abatement. Green waste open windrow sites may occasionally get an odourous load but will have no way of venting this to abatement but will manage the odour in other ways, for example processing the material straight away, blending with other wastes or covering with a layer of oversize to act as a biofilter.

**4.8. Compost**

4.8.1. We support that BAT is to produce compost to PAS100 but in order to align with the End of Waste position this should clarify that compost should be produced that is certified to PAS100.

4.8.2. We are not clear what sort of risks there could be from screened material 'requiring to be stored on impermeable surfaces where a risk to the environment is identified'. This has the potential to be misinterpreted as all screened material requiring to be stored on impermeable surfaces when in reality this material (if PAS100 certified) could go to an end user, for example a farmer and sit in a corner of a field awaiting spreading without causing any environmental risks.

**4.9. Monitoring**

4.9.1. More information is needed as to what 'appropriate qualifications' are for staff carrying out extractive emissions monitoring. Typically compost producers would use an external specialist firm but if they are to make a judgement on the 'appropriate qualifications' more information is needed.

## Conclusion and recommendations

It is understood that this document is for consultation purposes and as such it is hoped that this response will help to refine SEPA's approach to the difficult problem of determining BAT and how it should be incorporated within the permitting structure. It is also acknowledged that SEPA officers require guidance as to how to evaluate applications for new facilities and assess compliance and BAT at existing ones.

It is suggested that these are two very separate aims yet the document appears to try to roll them into one. Schedule 3 of the document is guidance (which still requires some technical revision) that may be useful but if accepted as BAT would become binding.

The end result of this, far from achieving the improved processes and greater understanding would more likely result in mass non-compliance with unworkable requirements. Should

this non-compliance be followed with the necessary enforcement action the possible collapse of the industry may be very real. Costs will soar in attempts to comply and investment may dry up due to lack of appetite to be involved in a sector where the goalposts may be moved in a short space of time requiring huge re-capitalisation.

At first this may seem overdramatic, however it should be noted that the composting industry in Scotland is well established. The number of expected new sites in the next 5 years is minimal. The proposed guidance would in reality be applied to existing installations and possibly sites operating under a waste management licence. The cost of converting today's composting facilities to ones which would comply with all of the suggested guidance would certainly run into hundreds of thousands in terms of restructuring and continuing running costs. In addition, as previously stated, even if money were no object, the proposed timescale for compliance is not realistic.

**Recommendation**

It is suggested that Schedule 3 of the Consultation Document be reworked as guidance document for SEPA officers, existing and future operators. This could be best achieved by a working group possibly comprising ORG Scotland, Representative Operators, SEPA and Zero Waste Scotland Organics team. We would be happy to help co-ordinate this and host a meeting.

If SEPA is required by the EU to produce BAT guidance it should be done in a similar manner as described above in the first instance. A working group should produce a document adapted from Schedule 4 with a holistic approach to the concept of BAT for composting operations based on current best practices, new techniques and direct knowledge of the likely impacts of changes to existing practice.