

What's this document about?

A call for evidence for biowaste treatment facilities to enable a future review of permit conditions.

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Introduction

1. This Call for Evidence acknowledges the aims of the [Government's 25 year plan](#) and Clean Growth strategy, Clean Air Strategy and how the biowaste treatment sector can contribute to these aims. These include;
 - Reduce pollution and impact on local communities
 - Reduce greenhouse gas emissions and cleaner air. Minimise the impacts of anaerobic digestion in relation to air quality with improved ammonia and phosphate extraction reducing methane emissions
 - Ensure outputs from treatment enable thriving plants and wildlife and is fit for use, managing land sustainably by replenishing depleted soils and protecting the environment from harmful chemicals
 - Enabling the reduction of waste
 - Maximising the value of food waste
 - Clean and plentiful water
 - Eliminate avoidable plastic waste
 - Reducing the use of peat
 - Enhancing and protection of natural capital
 - Improve energy and resource efficiency and recovery
 - Improved biosecurity
2. We believe that the biowaste treatment sector plays an important role in achieving these aims. It supports the health of the UK's soils by converting a wide range of organic wastes into valuable biofertilisers, soil conditioners and horticultural growing media. It enables biodegradable wastes to be diverted from landfills, preventing or reducing as far as possible the negative effects of landfilling waste. Biogas from the anaerobic digestion process is injected into the gas supply network or used to generate electricity and contributes to the UK's diverse mix of renewable energy sources.
3. However, it is widely recognised that the environmental performance of the biowaste treatment sector needs to improve. Despite some excellent examples of good practice the sector has a long history of pollution events and amenity problems. Although there has been some improvement in the performance of the sector in recent years, it lags behind that of the wider waste industry.
4. We want the biowaste treatment sector to become a leader, delivering a high value sustainable renewable resource, driving continuous improvement. In this narrow context, we see sustainability in terms of maximising all the benefits of good resource management and minimising the health and environmental impacts of the waste treatment process.

Purpose of the call for evidence

5. We know that parts of biowaste industry are taking positive steps to improve performance, and we welcome the work of the Anaerobic Digestion and Bioresources Association, the Organics Recycling Group and others in promoting best practice and improving the reputation of the biowaste treatment sector. However, we think there is scope to go further.
6. Most biowaste treatment facilities require an environmental permit to operate. These permits define the environmental standards expected and the framework of controls that will apply, but they also allow operators considerable freedom in how they run their facility. Our aim is to ensure that permits strike the right balance between environmental protection and operational flexibility.
7. The requirement to adopt best available techniques in accordance with the revised waste treatment BREF¹ will shortly be impacting biowaste treatment installations. Similar requirements for non-installations call for appropriate measures to be taken. Recent audits of biowaste treatment facilities have revealed a significant shortfall in expected operating standards². The call for evidence seeks your views on a range of measures that might be adopted to reduce environmental risk posed by biowaste facilities.
8. We have a statutory duty to review and revise permits to ensure they remain fit for purpose. Later this year we will be conducting a detailed review of our biowaste permits with the aim of achieving better environmental outcomes. This call for evidence begins the process of our biowaste permit review.
9. We want to ensure that any amendments we make to the permitting of biowaste facilities benefits society, reduces environmental risk, and are affordable. We want our permitting process and our compliance assessment to be meaningful, effective and consistent. We will use this call for evidence to gather views about our permitting framework and elements of our available guidance. We will use the responses to inform revisions to our permit conditions in autumn 2018, when we will give an opportunity for a further full consultation on any proposed changes.

¹

[Best Available Techniques \(BAT\) Reference Document for Waste Treatment final Draft](#)

² See annex for summary of auditing project findings

Confidentiality and data protection

Information provided in response to this call for evidence, including personal information, may be subject to publication or disclosure in accordance with the access to information legislation (primarily the Freedom of Information Act 2000, the Data Protection Act 1998 and the Environmental Information Regulations 2004).

If you want information that you provide to be treated as confidential please say so clearly in writing when you send your response to the call for evidence. It would be helpful if you could explain to us why you regard the information you have provided as confidential. If we receive a request for disclosure of the information we will take full account of your explanation, but we cannot give an assurance that confidentiality can be maintained in all circumstances. An automatic confidentiality disclaimer generated by your IT system will not, of itself, be regarded by us as a confidentiality request.

We will summarise all responses and place this summary on the GOV.UK website. This summary will include a list of names or organisations that responded but not people's personal names, addresses or other contact details.

Who should respond?

We want to gather views from anyone with a professional interest in this sector including waste producers, waste operators, local authorities, farmers, land managers, environmental consultants, and trade associations. We would also welcome responses from the public. We will use the responses gathered through this Call for Evidence to develop a package of proposals, including amendments to biowaste environmental permits, for consultation in autumn 2018.

How to respond

We welcome all responses to this Call for Evidence. When responding, please state whether you are responding as an individual or representing the views of an organisation. If you are responding on behalf of an organisation, please make it clear, where applicable, how the views of members were assembled.

You can respond electronically using the standard rules consultation

Responses can be emailed to: standard-rules@environment-agency.gov.uk

Written submissions can be posted to:

Regulatory Development (Permitting) Team

Environment Agency

Horizon House

Deanery Road

Bristol

BS1 5AH

Please submit your response by the consultation closing date.

Availability of standard rules

8. We produce standard rules where we believe the environmental and health risks can be addressed through a set of generic conditions, and where there is sufficient demand to justify their development and maintenance Table 1 summarises these permits. Some of biowaste standard rules have attracted no uptake. We propose to withdraw these standard rules to allow our resources to be put to more productive use. Where uptake has been minimal we will review the permit conditions but are proposing they will no longer be available.

Standard Rules reference	Description	Permits issued
S0817 No 17: (not available after 2017)	Composting in closed vessels waste permit must be treating less than 75 t/d	2
SR2015 No.12: 75kte non-hazardous mechanical biological (aerobic) treatment facility	Mechanical Biological Treatment of waste	0
S0818 No 18: 75kte Mechanical biological treatment (existing permits)	Mechanical Biological Treatment of waste	1
SR2010 No 15: Anaerobic digestion facility <75,000 tpy	Not available after Jan 2013. Facilities should be compliant with later Standard rules or applied for an installations permit.	2
S1203 No 3: Composting in closed systems	These apply to permits from 1st March 2016. Site treating less than 75 t/d	2
SR2012 No 4: composting in closed systems - installations	Installations permit applying to sites processing more than 75 td	0
SR2012 No 8: composting in open systems - installations	Installations permit applying to sites processing more than 75 td	0
SR2012 No 9: on-farm anaerobic digestion using farm wastes - installations	Installations permit applying to sites processing more than 100 td	0
SR2012 No 11: anaerobic digestion facility including use of the resultant biogas - installations	Installations permit applying to sites processing more than 100 td	0

S1212 No 12: Anaerobic digestion facility inc use of biogas	These rules apply to waste sites from the 1 march 2016	5
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Table 1 - summary of standard rules where uptake has been low or non-existent.

We would like your views:

Qu 1. Do you agree with the proposal to withdraw these standard rules?

Do you foresee any problems that might arise from their withdrawal?

Qu 2. Do you have any suggestions for new biowaste standard rules?

a. What evidence can you provide of demand for these new standard rules?

Technical competence and operational competence

Biological treatment facilities involve complex processes that require careful management. A thorough understanding of these processes is necessary to operate safely and without creating environmental or amenity problems. There have been a number of incidents and near misses in recent years where operator error has been a factor.

Permitted biowaste facilities must identify a technically competent manager (TCM) or comply with an approved corporate competence scheme. The minimum attendance required of a TCM at sites which have a standard permit is currently only 20% of the total operational hours. This means that for much of the time responsibility for day to day management falls to operational staff whose technical expertise is unknown.

We need to ensure that operational staff are fully in control of the process and decision making on an hour by hour basis, that they understand the operational parameters of the site, and can identify when problems are occurring and when to call for additional assistance. This is particularly true for more complex treatment processes such as anaerobic digestion.

We audited 110 anaerobic digestion facilities and found that operators often rely on third parties to interpret data. This occurred at;

- 60% of standard rules waste sites
- 30% of installations
- 100% of on-farm facilities

If additional training is required then what do you believe you would need to achieve that level of process knowledge.

We would like your views:

Qu 3. Do you think that increasing the percentage of operating hours a TCM is required to be present on site would reduce the total risk?

a. If not please give reasons

Qu 4. Do you consider that requiring operational staff to demonstrate a working knowledge of the facility is an effective way of reducing total risk?

a. If not please give reasons

Qu 5. Can you suggest alternative measures to reduce the risk posed by a lack of competence?

Qu 6. (Permit Holders) We would like to know more about who covers the technical competence of your site or what examples of training you provide to ensure that day to day operational process is fully controlled and understood. Please complete the technical competence section of the accompanying survey.

Construction Standards

Many incidents that occur do so because primary containment measures have failed. The root cause failure is frequently traced back to one or more of the following:

- Poor design and standard of construction
- Lack of a hazard and operability study (HAZOP) or similar
- Operator competence
- Poor or faulty maintenance and repair
- Lack of secondary containment

Secure containment is essential to safe management of waste so we need to reduce the likelihood of these factors causing failures. We consider that all physical infrastructure should in future meet a design and construction standard certified by a qualified engineer. The design would take account of the need for secondary containment. A HAZOP study should inform the design process and a commissioning plan be implemented with sign off before a facility becomes operational.

The written management system required by permits should include arrangements to deploy competent staff, training schedules, and maintenance and repair procedures.

Qu 7. Do you support using a rigorous design, construction and commissioning process to minimise the risk of containment failures?

a. If not please state why

Qu 8. Can you suggest additional or alternative means of tackling containment failure?

Qu 9. Would any such requirements be better imposed through permit conditions or stipulated in guidance as a necessary part of a written management system?

Qu 10. (Permit Holders) Could you, if required provide a certification of critical infrastructure in relation to you site? If so who certified this and what qualification did they have? If you cannot you think you will have difficulty meeting an industry standard for your design and build e.g. CIRA 736 for secondary containment?

De-gritting and tank integrity

A review of anaerobic digestion incidents identifies the build-up of grit and debris as a significant risk factor in process and primary containment failure. It is necessary for permit holders to carry out regular tank integrity checks, de-gritting and mixing, and to conduct a root causes analysis for events such as an over pressure event.

Qu 11. (Permit holders) If you operate an anaerobic digester do already carry out regular de-gritting and tank integrity checks?

Qu 12. Do you foresee any issues with making this a more transparent requirement of all anaerobic digestion permits?

Non-routine emissions or biogas and auxiliary flares

There are environmental, safety and financial benefits in monitoring and minimising fugitive methane emissions. One source is the pressure relief valve. Whilst we do not set emission limits on these valves we require that they are correctly seated following operation. We are minded we remove the emissions points from pressure relief valves from the emission table and include instead emissions for non-routine operations and incident management. Pressure relief valves operations and seating would need to be more rigour inspected to demonstrate that emissions are being minimised.

Flares are one of the control measure that allow sufficient safety measures in the event of a failure or over pressure event and also mitigate and prevent unwanted release of unburnt biogas to atmosphere. We do not currently state that the inclusion of an emergency flare is compulsory but are minded to do so in order to minimise the release of this potent greenhouse gas.

Qu 13. (Permit holders) Do you already have a high temperature standby flare at your anaerobic digestion facility? If not would the compulsory requirement for one have significant impact? If so what is the estimated additional capital cost?

Gas upgrade and gas to grid

Gas cleaning, drying and upgrading to biomethane are permissible activities. In most cases the processed gas is injected into the grid. Sometimes however demand for electricity and gas to grid is low and gas may be vented to atmosphere or flared off. We believe that this wasteful practice should be avoided by requiring additional capacity to store or utilise gas demand to the national grid is low. Flaring or venting would then only be necessary when the plant needs to shut down in an emergency or unscheduled maintenance. We also consider that propane used for propanation should be located and stored in a secure place.

Qu 14. Do you envisage and issues with limiting the flaring of biogas or secure storage of propane?

Qu 15. (Permit holders) Would your facility require additional gas storage if such a condition was imposed? If so what will be the cost?

Nitrogen management and ammonia emissions

Nitrogen is a valuable plant nutrient and many organic fertilisers are nitrogen rich. However ammonia is recognised as a significant contributor to air pollution and can cause harm to human health and cause damage to some valuable nitrogen deficient habitats. Poor storage of some high ammonia feedstocks and waste derived fertiliser can result in the release of ammonia. These emissions can be significantly reduced by following good practice during handling and storage.

We therefore propose that in future ammonia rich feedstocks and digestates should be stored in containers or lagoons which are designed to minimise ammonia loss.

Qu 16. What are the technical challenges of such a requirement?

a. Have you any data to demonstrate the efficiency of abatement technologies that you have used?

Qu 17. What alternative measures might be considered to reduce nitrogen losses to air?

Spreading of any fertiliser should be timed to provide crops with the necessary plant nutrients when they are needed, and not simply as a means of managing digestate i.e. end user led not producer led. There are periods when the land bank will not be available for spreading and it is not possible to move digestates to farms or remote storage facilities. In such instances it is important that anaerobic digester operators have some storage capacity available. We are minded to stipulate that digesters have sufficient on-site storage to accommodate two months of production.

Qu 18. Would digestate storage capacity equivalent to two months of production be sufficient to ensure resilience in the digestate production and supply chain?

Qu 19. What alternatives to on-site storage might be preferable to deliver resilience?

Abatement technology for air handling and treating emissions is often poorly designed and often struggles to contain emissions. We expect any air handling systems and abatement to be correctly designed built and maintained as per manufactures recommendations and may require proof on application that a suitably qualified person has agreed the design and construction. This would prevent costly retro fitting and issues with emission abatement when fully operational.

Drying digestate is currently a permitted activity but we have not stipulated clearly that this requires abatement. We produced a position statement to clarify what is required but we are minded to withdraw that statement and include the necessary abatement within the operating techniques. We would require air streams to be stripped to produce valuable ammonium.

Qu 20. Do you agree with these proposal? Please give reasons.

Qu 21. If you have experience of issues with abatement technologies we would like to hear from you. Similarly if you have an abatement technology which has worked well and reduced emissions can you describe these and give examples of parameters where efficient abatement is demonstrated? If you have available monitoring data we would like you to share this.

Improved water efficiency

We currently state that clean surface water from roofs and that are not being used in connection with storing or treating waste can be discharged to surface water or to ground by seepage. In order to preserve water resources and reduce cost to operators we suggest that clean water could be harvested for use on site. We also believe that clean water separation is best practice, as mixing with leachate and dirty water presents issues with storage capacity and can make disposal expensive. We propose that clean and dirty water separate is mandatory.

Qu 22. Do you agree with this proposal? Please give reasons.

Qu23. What alternative can you suggest?

Location of sensitive receptors

There are a number of distance criteria that you must meet in order to apply for standard rules permits. These consider the source pathway receptor linkage in controlling environmental risk.

Water bodies

Currently we restrict location in our standard rules permits:

- 10 metres of any watercourse
- groundwater source protection zone 1, or if a source protection zone has not been defined then within 50 metres of any well, spring or borehole used for the supply of water for human consumption. This must include private water supplies.

These standards were based on Code of Good Agricultural Practice (COGAP) principles. A review of incidents indicates some considerable impacts on the water environment as a result of loss of primary and secondary containment at standard rules sites. We are considering two options to address this shortfall in environmental protection; (i) increase the setback distances or (ii) require all sites within 10m of a watercourse to have secondary containment designed to an appropriate standard.

Qu 24. Which of the two measures do you prefer? Please give reasons.

a. Can you suggest any alternative approaches to protecting the water environment?

The standard of drainage infrastructure varies between sites. In order to achieve a consistently high level of groundwater protection we are considering one or more of the following options:

- (i) All infrastructure and drainage is designed and built to a standard certified by an engineer.
- (ii) Where there are underground pipe work or tanks a leak detection system must be fitted.
- (iii) All transfer pipework is fitted with flow meters and shut off valves.

Qu 25. Which combination of measures do you prefer? Please give reasons.

a. Can you suggest any alternative approached to protecting the water environment?

Sensitive and protected areas

We also consider other habitats in location and adherence to standard rules permits:

- 250 metres within the presence of Great Crested Newts where it is linked to the breeding ponds of the newts by good habitat;
- 50 metres of a National Nature Reserve, Local Nature Reserves, Local Wildlife Site, Ancient Woodland or Scheduled Ancient Monument.
- 50 metres of a site that has relevant species or habitats protected under the Biodiversity Action Plan that the Environment Agency considers at risk to this activity.

Qu 26. Do you believe that these set back distances are appropriate / adequate? Please give reason for you answer.

Waste types and acceptance

Waste tonnage

The tonnage of waste processed per day will determine whether a site requires an installation permit (Industrial Emissions Directive) or a waste operation permit. Waste operation permits

are limited to 100 tonnes per day for anaerobic digestion and 75 tonnes per day for all other biological treatment. Installation permits are typically limited to 75,000 tonnes per year. None of these limits take into account the plant's design capacity.

From experience we find that operating the plant above its design capacity is the root cause of many process problems and pollution incidents. We want to ensure that facilities are not operated above their stated design capacity and propose to limit tonnage accordingly. In the absence of a stated capacity the limit stated in the planning permission may be used.

Qu 27. Do you support this approach?

Do you foresee any difficulties with this suggestion? Please give reasons

Waste codes

The waste codes are listed in section 2 of the standard rules. We have undertaken a review of 04 01 textile industries wastes from the leather and fur industry and found that that the hazards from these waste may not be fully characterised. We therefore propose to remove these from the applicable standard rules.

Some standard rules list 07 chapters wastes from organic chemical processes glycerol waste from bio-diesel manufacture from non-waste. This waste would need additional measurement of methanol levels and a full understating of organic loading rate would be needed to adequately control the digestion process. We are recommending that this waste is removed from Standard rules permits on a risk basis.

We also recommend that any post-consumer wood is removed from the waste stream.

We limit the input of invasive species. Should this be expanded?

Qu 28. Would you have any concerns if these wastes are removed from standard rules? If so please explain.

Waste acceptance

There can be significant and long term impacts from the contamination of waste feedstock material, not least the acceptance and marketability of the end products. We have experienced examples of land contamination following the application of contaminated compost and digestate to land. In some instances this has led to loss of income and even tenancy for the farmer. More widely it can be detrimental to the biowaste industry's reputation.

Our permits do contain conditions about waste acceptance but we rely on operator's management system to contain details of the waste assessment process, both upstream pre acceptance and reception, to ensure a waste is suitable for processing. Upstream auditing, planning waste acceptance and sampling can positively impact on feedstock quality, process control and final product and we would seek to make these permit requirements. Further, this places the onus on producers of waste to ensure duty of care is discharged.

Qu 29. Do you think expanding waste acceptance conditions to include pre-acceptance and waste sampling programmes could drive improvements in feedstock quality?

Q29a Would guidance on upstream waste auditing, planning waste acceptance assist?

Sludge Treatment

We have two standard rules for sludge treatment that allow a range of treatment options. In our charging review we made the differentiation for digestion and sludge treatment. We are proposing to split the activity for sludge treatment into two permits. One to allow digestion and one for sludge treatment and stabilisation.

Qu 30. Would there be any problems with us making the differentiation with treatment activity?

About you

We would like to understand more about you and the size of your business.

Please describe the sector you operate in and further information about your business and activities that may help us.

1. Which option best describes you?

	Trade association
	Professional body
	Consultant
	Investor
	Insurer / Broker
	Central government
	Local government
	Charity or social enterprise
	Legal representative
	Large business (over 250 staff)
	Medium business (50 to 250 staff)
	Small business (10 to 49 staff)
	Micro business (up to 9 staff)
	Start-up
	Academic
	Individual (member of the public)
	Other (please describe)

2. What is your name?

3. What is your organisation or business?

4. Email address or contact details.

Technical Competence

5. Do you currently hold an environmental permit/ If so how many?

Type of process	Standard rules	Bespoke permit	Treatment capacity tonnes per day
Anaerobic digestion			
Anaerobic			
Composting Open			
Composting In vessel			
Mechanical Biological treatment			
Sewage sludge treatment			
WWTW waste			
Combustion of biogas			

6. How do you currently satisfy technical competence requirements at your permitted sites?

	CIWM / WAMITAB - Owner / Director holds current technical competence
	CIWM / WAMITAB - Member(s) of staff holds current technical competence
	CIWM / WAMITAB - External arrangement e.g. contract with consultant or similar
	ESA/EU Skills approved corporate competence
	Other – please specify

7. For CIWM / WAMITAB scheme: Does your technically competent manager have day to day control of sites processes and management? If not who does, and how do they access your technically competent manager in the event of operational issues or an incident?