



# **Biowaste permits: review to improve environmental outcomes - response document**

September 2019

We are the Environment Agency. We protect and improve the environment.

We help people and wildlife adapt to climate change and reduce its impacts, including flooding, drought, sea level rise and coastal erosion.

We improve the quality of our water, land and air by tackling pollution. We work with businesses to help them comply with environmental regulations. A healthy and diverse environment enhances people's lives and contributes to economic growth.

We can't do this alone. We work as part of the Defra group (Department for Environment, Food & Rural Affairs), with the rest of government, local councils, businesses, civil society groups and local communities to create a better place for people and wildlife.

Published by:

Environment Agency  
Horizon House, Deanery Road,  
Bristol BS1 5AH

[www.gov.uk/environment-agency](http://www.gov.uk/environment-agency)

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# Foreword

We ran a Call for Evidence consultation ahead of a review of biowaste standard rules permits.

The aim of the consultation was to:

- outline and share possible changes we may make to standard rules permits
- seek opinion regarding possible reinforcements to permit conditions, with the aim of reducing risk of incidents, improve compliance and ultimately afford better environmental protection with lower costs to the operator
- seek opinion on measures we could take to ensure operator competence
- seek opinion on addressing standards for design and build to prevent risk to the environment, public and operators
- explore how we can better manage surplus biomethane and biogas at the point of production
- see how we can ensure that the goals of the 25 year environment plan and clean air strategy are met

The consultation provided an opportunity to comment on our proposals ahead of any revision to the standard rules permits. It provided an opportunity for the public and industry to share with us evidence for improved compliance and appropriate measures along with value and costs.

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# 1. How we ran the consultation

We ran the consultation for 8 weeks from 28 June to 20 September 2018. Respondents could comment using our Citizen Space online consultation tool.

We held webinars with industry operators to explain our proposals. We provided evidence to support any changes we propose.

We want our proposals to achieve the best environmental and sustainable outcomes. We asked 30 questions in this consultation.

We had 11 direct responses to the consultation. This included 7 from site operators and 4 from trade associations. There were no comments from members of the public.

## 2. Summary of main findings and the actions we'll take.

We would like to thank all the respondents for their time and contribution to this consultation. We've reviewed all the suggestions. We've provided the reasons where we will not implement suggested measures.

This is a record of responses to questions. We have not recorded 'nil' responses. We've summarised the responses received into 'main findings' and provided our responses to the specific comments received.

We will now propose significant changes to our standard rules permits (SRPs) to make sure they adhere to the principles of standard rules. This means that the activity will be low risk. We believe these measures will result in improved environmental performance and reduce risk to the community and wider environment. As importantly, we also think our proposals offer better protection and assurance for operators.

We aim to publish a further consultation on the proposed amendments to the SRPs for biowaste treatment in autumn 2019.

### 2.1. General comments: our position

We know that parts of the biowaste industry are taking positive steps to improve performance. We welcome the work of the Anaerobic Digestion and Bioresources Association (ADBA), the Renewable Energy Association - Organics Recycling Group (REA ORG) and others. They are promoting best practice and improving the reputation of the biowaste treatment sector. It's widely acknowledged that the biowaste sector must improve performance and we think there is opportunity to raise operational standards.

Most biowaste treatment facilities require an environmental permit to operate. These permits and their conditions must give the right protection and achieve environmental and social outcomes. They must also define the environmental standards we expect and the framework of controls that must apply. 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.

SRPs are intended for low risk, low impact facilities. The sector has both installation permit holders and waste facility standard rules permit holders. Installation permit holders will be required to incorporate best available technique (BAT) conclusions and BAT reference document (BREF) into day to day practice. Appropriate measures are not too different from BAT. There is nothing new in the BREF operational measures that we have not

already considered as appropriate measures. Where it's viewed that operators would significantly control risks by adopting appropriate measures, they'll be incorporated into SRPs.

We have a statutory duty to review and revise permits to ensure they remain fit for purpose. 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 undertook a call for evidence to obtain feedback from industry on our proposed changes to our permitting framework and elements of our available guidance.

The critical difference between SRPs and bespoke permits is:

- the location in relation to sensitive receptors and set back distances to protect these receptors
- waste types
- set limits on tonnage and activity permitted

In this call for evidence we considered the known causes for failures and poor compliance. We also considered relevant elements of government's 25 year environment plan and the Clean Air Strategy. Those documents lay out clear objectives for improving and preserving habitat and wildlife, whilst protecting local communities and air quality.

We need to make sure that:

- primary infrastructure and secondary containment will not fail - we will require standards to be introduced into design and construction
- there's more clarity on operators roles, responsibilities and competence
- sites are properly maintained and primary containment is preserved
- waste types are removed that could inhibit the quality of the final outcomes or increase odour
- set back distances set to protect receptors
- ammonia emissions are prevented and or controlled
- greenhouse gases and emissions are limited
- monitoring and emergency measures are in place
- operators are as prepared as they can be for extreme weather events

## **2.2. General comments from industry**

### **2.2.1. Chartered Institution of Wastes Management (CIWM) - general comments**

CIWM wanted to reiterate, before responding to individual questions, that it's important all sites are operated and regulated under the same regime. For all the SRPs, the generic risk assessments (GRAs) are the same, yet not all sites are regulated to these same risk assessments. CIWM asks that regardless of the feedstock, all sites are operated and regulated with the same risk consideration.

CIWM also asks that technical guidance is made available for those operating all permitted sites. 'How to comply with your permit' was good technical guidance that needs to be made available. CIWM agrees it probably does need updating but that's not a reason for keeping it out of the public domain. Many operators keep their own copy and use it.

Technical guidance for composting, anaerobic digestion (AD) and mechanical biological treatment (MBT) was also developed but not published. These drafts contained BAT and other technically relevant information for operators. CIWM asks for this to be updated and released. These drafts were and are still used by those with access to them. They're relevant for technical competence – an area addressed in the consultation. CIWM suggests this guidance could help those who need to be competent.

CIWM is aware that many of the issues with AD facilities are due to a 'rush' to complete sites to obtain incentives to operate the plant. This has shown up the consequences of supplying incentives to generate renewable energy against the need to design, build and operate facilities to an acceptable level of health, safety and compliance. This has led to some sites being commissioned before drainage, or secondary containment has been completed.

CIWM believes the commissioning period and early months of operation are the riskiest. CIWM suggests some 'permit probationary period' is required. This would ensure site staff and management are fully aware of:

- plant operational requirements
- how to follow the management system correctly

CIWM also suggests that good operational performance should be rewarded. For example, it could be linked to the charging and subsistence regime.

CIWM asks that the performance review the Environment Agency were undertaking be finalised and issued for consultation.

### **Our response**

We agree with these observations. We think it's reasonable to have a preoperational condition that requires a commissioning plan. This must be met before the site is fully operational. This should prevent issues once in full operation. No sites should start commissioning before the site's completed infrastructure construction as agreed. We have completed the AD audit campaign and plan to share the results of that in the permit consultation. We have already shared the report informally with industry at conferences and the Biowaste Regulatory Forum.

We've started reviewing operator recognition for good performance, but it's not part of the permit review.

We'll raise the issue of guidance as part of the permit review consultation.

### **2.2.2. Thames Water general comments**

Thames Water (TW) thanked us for the opportunity to contribute to this call for evidence for biowaste treatment facilities - to enable a review of permit conditions. They've addressed the specific consultation questions where possible and have these general comments.

Where the Environment Agency propose to include construction standards for biowaste facilities under the Environmental Permitting Regulations, they would like to highlight that there are other regulations/engineering standards in place - using these would avoid the need to have specific additional permit conditions and associated duplication of effort.

'Nitrogen management and ammonia emissions' proposals - it's not clear to TW whether the proposals for storage requirements are specifically aimed at liquid digestate storage. If they're also aimed at solid digestate, then they'd like to highlight their response to Defra's Clean Air Strategy 2018 consultation. The implementation of the measures is likely to

require significant investment and TW can provide a copy of their response to Defra's Clean Air Strategy on request if this would be helpful.

Any additional restrictions on distance to sensitive receptors should be based upon risk. There are inherent difficulties and costs of retrospectively applying such new rules to larger, existing plant. It would be useful to understand what type and the numbers of incidents have prompted this response. A blanket change in all circumstances is unnecessarily onerous and costly when it's likely there are specific operations that should be targeted.

### **Our response**

Whilst the Construction (Design and Management) Regulations 2015 lay out the contractual arrangements, they do not stipulate design standards or qualification. To avoid retro fitting and increased costs post construction we feel a standard that is risk based is an appropriate permit condition to meet. And that this standard will be widely accepted by industry.

We have a legal obligation to reduce ammonia and emissions that could damage or be of risk to human health and the wider environment. It is our statutory obligation to do so.

We note your comments on existing plant and the difficulty in retrospectively applying distance criteria. However, there was no submission of evidence related to cost.

### **2.2.3. National Farmers' Union (NFU) general comments**

NFU is pleased to submit its views and comments to the Environment Agency's review of biowaste permits to improve environmental outcomes. NFU represents 55,000 members in England and Wales and is involved in 46,000 farming businesses. In addition, they have 55,000 countryside members with an interest in farming and the countryside.

Our interest in the consultation is that:

- if you make any changes to or remove any standard rule permits they must not stifle the future growth of the on-farm AD sector - reverting to bespoke permitting would be a retrograde step
- training requirements need to be proportional to the size, complexity and feedstock of the AD unit

NFU supports light touch competence training, refresher training or on-the-job continual professional development (CPD).

NFU stated they would only respond to questions relevant to their organisation and members.

### **Our response**

We thank the NFU for the time given to respond. We look forward to our continued working relationship with them. We want to ensure all biowaste facilities are operated to achieve the best environmental and economic gain whilst supporting the farming community.

### **2.2.4. ADBA general comments**

ADBA is pleased to work with the Environment Agency and other stakeholders to help improve standards in the AD industry. ADBA developed the AD Certification Scheme through stakeholder consultation. This is the mechanism by which AD operators:

- can have a comprehensive audit of their plant operation
- achieve certification if they meet all scheme criteria

The scheme criteria have significant overlap with the proposals outlined. ADBA urge the Environment Agency to utilise the ADCS as a method of assessing the requirements and to reward those operators who are achieving it.

ADBA have set out their response to the consultation, which they've written following discussions with members, and individual written responses on certain questions from seven members.

### **Our response**

We agree the scheme can be helpful to operators so that they can remain compliant with their permit conditions and requirements. However, the scheme is voluntary and not designed to be a delegated inspection regime. Therefore, we cannot relinquish our responsibility as a regulator. It may be possible in the future, to make better regulatory use of the scheme and we will update the ADBA if the situation changes.

### **2.2.5. Foodchain and biomass renewables association UK (FABRA UK) general comments**

FABRA UK collated their members' comments.

This call for evidence is very important for FABRA UK members. This was highlighted at the recent Environment Agency Biowaste Regulatory Forum, which FABRA UK attend alongside the AD industry. The inconsistencies in regulatory standards applied to the AD sector compared to the higher standards applied to the rendering sector is clear to FABRA UK members and the Environment Agency. We point out however, that some members also operate AD sites, and as responsible operators, they're keen to see the highest standards imposed to prevent poor performers entering the sector and benefitting by making savings on not complying with regulatory standards.

FABRA UK have additional information and site-specific examples which were not really covered by the questions. For example, issues with the differing classification of inputs, particularly the ABP categories and FABRA UK note the BAT conclusions from the recently issued waste sector BREF apply to the AD sector. They would expect these BAT conclusions to be addressed in the revised permitting regime for the AD sector. Similarly, where sites are processing animal by-products, they expect them to adhere to the BAT conclusions arising from the forthcoming review of the Slaughterhouse and Animals (SA) BREF.

FABRA UK note that not all AD sites are run on SRPs and many of them do have bespoke permits already, but there are differences between these. However, many sites are still benefitting and continue to be regulated using the very light touch SRPs.

### **Our response**

We thank you for your comments. It's the primary activity that best determines where compliance with BAT sits. A biowaste facility cannot be made to comply with both the waste treatment BAT and the food and drink BAT conclusions or BREF.

We'll adopt BREF and BAT conclusions in the permit revision, as we're required to do so. This will also apply to existing bespoke permits. We'll carry out a permit review programme. We dual regulate many AD sites with the Animal and Plant Health Agency, as we do with the rendering sector. However, the Environment Agency does not enforce the Animal by-products regulations.

## **3. Summary of responses to each consultation question and our response**

## Q1: Do you agree with the proposal to withdraw these standard rules?

Some standard rules sets have low uptake. We asked for views on the withdrawal of these rules sets.

We received 7 consultation responses to this question:

- yes: 3 of 7
- disagreed: 3 of 7
- neither agreed or disagreed: 1 of 7

### Summary of the main points raised

If standard rules were removed alternatives will need to be in place to prevent additional cost to operators needing a bespoke permit.

Further growth in the anaerobic digestion industry may be inhibited if they are withdrawn.

The standard rules did not offer clear environmental risk mitigation protection and did not improve the sector performance.

The permits offered a low form of environmental regulation and should be removed.

### Q1a: Do you foresee any problems that might arise from their withdrawal?

We received 7 consultation responses to this question. The remainder did not comment.

- yes: 4 of 7
- no : 3 of 7
- neither agreed or disagreed: none

### Summary of the main points raised

The standard rules offered flexibility and lower levels of regulatory burden in application and assessment.

The cost of maintaining standard rules sets is unclear and therefore so is the benefit of withdrawing them.

Low uptake could have been because the entry level is too restrictive.

The standard rules permits did not offer enough risk mitigation and environmental protection.

### Our response

We are pleased that industry generally support the standard rules approach.

The cost per permit review can range between £30,000 and £45,000. This does not factor in the time and materials cost for reissue and permit variation. There is no assessment on how environmental processes and operational procedures are applied. Operators can find themselves in non-compliance with their permit when they are later inspected. Resolving these issues is costly to both the operator and the Environment Agency.

Standard rules permits are designed for lower risk activities. The main difference of bespoke permits is the operation's location and distance from sensitive receptors.

We cannot relax the distances from sensitive receptors currently set. Many of these are protected by law or there is evidence to support the distance criteria to protect public health. For example, the bioaerosol position and stack emission distances.

We have reviewed some waste streams because of some waste streams being of higher risk, for example, post-consumer wood and tannery waste.

We have also reviewed tonnage limits and propose amendments to these.

We propose to consolidate the standard rules permits as appropriate.

We will make the operating techniques clearer where we think relevant to achieving good (the expected level) of performance. These will apply to existing and new operations.

We will amend the standard rules permits to include best available techniques (BAT) and Appropriate Emission Limits (AELs).

We will withdraw SR 2008 No 18 and SR 2015 No 12 - 75kte non-hazardous mechanical biological (aerobic) treatment facility as these have never been issued for biological treatment facilities.

## **Q2: Do you have any suggestions for new biowaste standard rules?**

### **Q2a: What evidence can you provide of demand for these new standard rules?**

We received 2 consultation responses to this question. The remainder did not comment.

- yes: 2 of 2
- no: nil

### **Summary of the main points raised**

Sites located in remote locations, not near sensitive receptors and that deal with small volumes of inputs should be allowed carry out their activity.

Suggest a review of existing SRPs identifying possible barriers to their use and consider revising accordingly.

Have an (Animal By-Products) ABPs standard rules permit and a non-ABPs standard rules permit. More waste needs to be brought in to AD's. Though not everyone wants to process ABPs.

### **Our response**

Operators can already apply for standard rules permits as long as they are not within the defined sensitive receptor areas. Distance criteria in the permits are set to protect potable water supply, human health and fragile environments. These permits were developed to enable permitting and achieve desired performance at facilities which truly represent low risk. The operator decides whether to locate its site within reach of sensitive receptors. However, emissions, odour and noise are hard to mitigate by distance alone. We will not relax the current distance measures.

Many biowaste sites become bespoke because of their location or the waste types they accept.

The inclusion of ABP waste in standard rules permits allows acceptance. Therefore the operator can choose to accept these wastes or not. Validation of treatment is regulated by the Animal and Plant Health Agency (APHA) should the operator choose to take and treat ABP waste.

We did not receive any evidence or description of any proposed new standard rules permits.

### **Q3: Do you think that increasing the percentage of operating hours a Technically Competent Manager (TCM) is required to be present on site would reduce the total risk?**

We received 10 responses to this question.

- agreed: 3 of 10
- disagreed 6 of 10
- neither agreed nor disagreed: 1 of 10

#### **Summary of the main points raised**

The majority of respondents felt that increased TCM attendance would not reduce risk.

Many on-farm AD plants are successfully managed in conjunction with the day-to-day management of the farm. If the requirements of competence are to change then it should be proportional to the size, complexity and feedstock of the AD unit.

It's essential for all operators to be competent and understand the operational processes. Being operationally competent is more significant and is a weakness in the current system.

Operational competence should be expanded to others on the site, especially if the TCM is not on site, there needs to be a 'second in command'.

The TCM qualifications were felt to be too generic. For example there is no specific qualification for AD operators.

The written management system documents should address the TCM requirement. It needs to clearly state the relationships and responsibilities of all operatives including third party TCM cover.

TCM cover should be proportional to the performance of the site.

ADBA is encouraging the development of a technical qualification for AD operators that covers the process operation of plants.

#### **Q3a: If not, please give reasons**

##### **REA**

Having well trained operating staff on site is key to lowering the site risk rather than putting the onus on one individual. The TCM plays more of an auditing role and has oversight of the operation. In the absence of the TCM, other competent staff members should be allowed to make key decisions. Increasing the percentage of operating hours will have a direct cost to the business but will not prevent an incident occurring in their absence. Each process or facility needs to be assessed on a case by case basis to determine the optimum balance between cost and risk reduction. There is also a need to implement a more standardised 'audit checklist' which includes staff and the supply chain which covers both training and record keeping. Senior management should ensure that staff are enrolled on a continuous improvement programme to assist in their development which in turn provides greater depth of cover within the organisation.

##### **CIWM**

CIWM believes having the TCM on site for a longer period should help reduce the risk on site. CIWM is more concerned about what technically competent means.

CIWM has called for a review of the operating hours of a TCM in other consultations, for example, 'Waste Crime and Poor Performance' - April 2015.

CIWM/WAMITAB proposes a formalised, percentage of operating hours, time-on-site system linked to the regulators' compliance banding for the site in the previous year or triggered by significant non-compliance or incident(s) in-year.

**Table showing CIWM's proposed percentage of operating hours on site by band**

<b>Compliance band</b>	<b>site</b>
<b>Band A</b>	30%
<b>Band B</b>	50%
<b>Band C</b>	75%
<b>Bands D, E or F</b>	100%

Poor performance leads to reduced operational flexibility for operators/technically competent persons. For example, 50% attendance makes it unlikely that a technically competent person will cover more than one site in a day but does allow operators considerable flexibility, regarding time off-site. Poor performance also shows that the number of proven competent persons on a site will need to increase to ensure operational competence.

CIWM believes that some operators, especially for storage-only facilities will need different considerations allowing for waste transfer and for periodic checks at the site at other times.

CIWM believes that the above approach can be accommodated by a revision to the CIWM/WAMITAB operator competence scheme and current regulator guidance. CIWM feels this would not require a legislative change.

Linking time on site to compliance assessment in this way will make training support and review mechanisms within the regulators even more important and this suggested approach could only operate with a properly resourced and trained regulator(s).

CIWM suggests that time on site requirements under the ESA/EU Skills scheme, to reflect the above proposal should be explored between the regulators and operators using the scheme.

CIWM has been concerned for a number of years about what technically competent means and suggests this should include operationally competent, this is a weakness in the current system. Operational competence should be expanded to others on the site, especially if the TCM is not on site, there needs to be a 'second in command'. CIWM suggests implementation of a new training programme that requires both managers and operators to be operationally competent – see Q4.

### **Thames Water**

In principle an increased level of specialised management attendance is likely to lessen the total risks at a facility. However, it is noteworthy, that because the individual TCM awards are broadly based and do not map well across to the individual tasks the operators complete on our sites, in reality, the proposed increase in cover requirements may make little difference. As a result, we think that careful consideration should be given to increasing this requirement to demonstrate the benefit to regulator and operator, as there will be increased costs attached to such a change.

### **ABDA**

It might reduce the risk to a small degree but as the qualifications required for a TCM relate predominantly to permit compliance, they may not necessarily have the skills needed in preventing or responding to incidents and would not necessarily have a working knowledge of the operation of an AD plant (they might do, but they don't have to). The scheme is useful to ensure there's a knowledgeable person managing the environmental issues but the qualification does not cover process management. As such, simply extending the hours they are required to be present is likely to have a very limited impact and may exacerbate the existing shortage of TCMs, which could actually prove counterproductive. For operators hiring in TCMs, the requirement for additional hours on site, which may provide little tangible or noticeable value to them but will cost them additional money, is unlikely to be well-received.

One positive outcome could be that it would encourage operators to train their own staff as TCMs rather than hiring in, because it could become more cost-effective and reduce reliance on contractors.

There's an issue that people who qualified as a TCM with the 12-unit national vocational qualification (NVQ) (Treatment of non-hazardous waste) before the medium risk AD qualification was introduced have had their qualification removed for AD. There are several experienced AD managers who have been de-qualified by this process. The Environment Agency is actively removing qualified people from the pool.

ADBA is encouraging the development of a technical qualification for AD operators that covers the process operation of plants. This should cover supervisors and operators with different levels of training.

## **FABRA**

The TCM is often not knowledgeable enough to prevent incidents, and they may also not spend enough time managing factors that directly relate to safe plant operation. Many TCMs are also site operational staff who could spend a 12-hour shift mending a piece of machinery, whilst neglecting all other aspects of the plant operation, as commercial drivers often take precedence over compliance/safety matters. Increasing the hours a TCM is on site may not address all issues if staff are not trained.

## **NON-85R5-QDYF-8**

The figures provided within the consultation appear to suggest that the problems may lie with those sites that have 3rd party TCM provision. For us, given that AD sites have 24-hour operation, this means that there is a requirement for 4.8 hours attendance which should be considered as sufficient. The AD sector is very varied and the operation of a single farm waste AD plant should not be considered the same as the operation of numerous AD plants, by a well-resourced and competent waste water treatment sector, employing their own TCMs who have an ongoing operational relationship with the sites.

A more granular approach should be taken to this issue rather than a one size fits all approach, with perhaps an increase in TCM hours only applying to certain site types, that is, small operations consisting of one operator sites only and/or those who use third party TCM. To increase TCM attendance across the AD sector as a whole may have disproportionate economic effects upon operators with multiple sites. Is there any evidence that increased TCM attendance would reduce total risk?

TCM requirement should be detailed in the management system, for example if it's a third party what is their relationship with the site/operation in terms of managing the activity. There is no definition on how a third party TCM influences activity and in some cases it is in 'name only'. Increasing the time attendance doesn't necessarily solve the problem. For

us, this can be demonstrated by employing our own TCMs, which undertake site inspections on a predefined frequency so as to highlight risk and issues to the operators.

### **Wessex Water**

All operators need to be trained to an appropriate level otherwise TCM would be needed 100% of the time which is an inefficient use of resources and time for the TCM.

### **Digit Recycling**

It depends on the type and complexity of the site.

### **Our response**

We welcome your thoughts and ideas on technical and operational competence. We're pleased to hear that industry has responded to this question positively, that is they support improved operator competence, not just increased mandatory hours for TCM attendance. It's imperative that operators are fully competent to control the process and interpret data and can act on that data to prevent risk and serious permit failings. We welcome the desire to improve operator training and look forward to working with industry in the future towards this goal.

We found that during our auditing campaign of AD sites, some of the on-farm AD community demonstrated an over reliance on third parties to ensure the process control on site. We will review the legal definition of 'operator' to clarify the role of third party controls and the expectations placed on them.

BAT conclusions for installations require a well-documented roles, responsibilities and training structure, to demonstrate adequate process control. A training and proficiency culture should be demonstrated by all, taking into consideration the size and complexity of the operation. We suggest that BREF is a common-sense approach and can be interpreted as appropriate measures. It's therefore reasonable to expect that waste facilities have the same level of management and training structure to demonstrate competent operator and process control. We propose to amend our guidance on the management system to ensure this is clear.

Industry already provide excellent opportunities for training to improve operator technical competence and plant efficiency.

We're keen to discuss with industry any change to the TCM qualification that could be made more relevant to AD and biowaste operations. We're also considering the response to Defra's Waste Crime Consultation and the proposed final revisions to the regulations.

## **Q4: Do you consider that requiring operational staff to demonstrate a working knowledge of the facility is an effective way of reducing total risk?**

### **Q4a: If not, please give reasons**

We received 11 responses to this question:

- yes: 10 of 11
- no: 1 of 11
- neither agreed or disagreed: nil

### **Summary of the main points raised**

Clear Environmental Management System (EMS) and site operational procedures needed so that operational staff can cover sickness and leave.

Operators should be competent and have all roles and responsibilities clearly laid out.

Training must be provided to ensure operational processes are safe.

Operational staff should be able to demonstrate a working knowledge of operations, but no need to be prescribed in standard rules permit conditions. The Environment Agency can assess compliance through site visits. This will provide operators with sufficient opportunities to demonstrate appropriate operational knowledge.

Reintroduction of 'fit and proper person' check, (originally under Waste Management Licensing regulations). A 'fit and proper operator' is more appropriate. This avoids confusion and ensures its applicability to large companies and single person operators. It should be widened to include an element of operator performance (where this did not result in conviction, such as an enforcement notice or civil sanctions) – Waste Crime consultation April 2015.

A whole-team competence approach would be beneficial, as long as the level of knowledge required is reflective of the role being done.

The Environment Agency will only be able to assess this if the officers have a good level of knowledge themselves, or utilise the AD Certification Scheme (ADCS) which does consider all round competence.

Operational staff should have to demonstrate a working knowledge of the aspects of plant operation. A more comprehensive training requirement and demonstration of ongoing knowledge for mid-level operatives would be beneficial. Third parties may be needed to interpret data, but site staff need to understand the outcomes. Staff on site need to be trained on matters such as operating parameters, hazard assessment and the main monitoring parameters.

WAMITAB will not necessarily cover the issue of operator competence. The site Standard Operating Procedures and EMS should form the basis of any training provided. It should be a requirement that every 'key' role on site has a minimum of two trained personnel in order to cover for sickness and absenteeism.

Whilst some operatives may not have duties that could impact negatively on site operations, on smaller sites in particular they will usually be involved in many routine and reactive tasks that can have negative environmental consequences. A more comprehensive training requirement and demonstration of ongoing knowledge for mid-level operatives would be beneficial.

### **Our response**

It's encouraging that the industry generally agrees with the Environment Agency about operational staff having defined roles and responsibilities. And also to have training to support these roles. We plan to make our expectations clear when we develop the management system guidance, for example will clarify the appropriate roles and responsibilities on site. Operatives should be trained in key process controls. The detailed management system elements in the BREF would be a common-sense approach to take. They could be developed as appropriate measures and set out the operational structures. It would be reasonable for all facilities to take this approach to improve operator competence.

We agree the risk to the environment is greatly reduced with improved operator competence.

We will review the definition of operator and where necessary clarify the required relationship between third party contracts. Where third party contractors are employed, the

operator must have some working knowledge about the consequences and effect of the data they're using.

We have provided training to over 400 officers that work in AD. Unfortunately, with staff movement and retention though recruitment freeze and voluntary redundancy, the staff and work load delivery has been challenging. However, we have made an effort to rectify our operational staff capability. Wastewater facilities in particular have been regulated by various teams nationally. We have made efforts to ensure they are all now regulated by the same waste and installation teams across the country.

## **Q5: Can you suggest alternative measures to reduce the risk posed by a lack of competence?**

We received 10 responses to this question

- yes: 7 of 10
- no comment: 2 of 10
- unsure: 1 of 10

### **Summary of the main points raised**

Routine site inspection by the Environment Agency would provide an opportunity for the inspecting officer to check the suitability of operating staff as to their competency.

The introduction of a requirement for staff to pass a recognised accredited training scheme could be one way of addressing this issue. Industry is often reticent to share 'good practice'. However, if there was greater cross-sector operator experience sharing through working groups, which include the input of the Environment Agency and Health and Safety Executive (HSE), this would help to improve standards across the sector.

Training and KPIs for all operational levels. Industry-wide training/competency programme to provide reassurance.

Industry recognition that poor performance has an impact on the whole industry not just the sites involved in catastrophic events such as tank failures. The REA is keen to see continuous development of employees encouraged and even rewarded through a mechanism linked to annual subsistence fees.

CIWM with Defra have been looking at ways to review and improve the technical competence schemes.

A light touch, refresher training or on-the-job continual professional development (CPD). The NFU have been working actively with the Environment Agency on educational checklists and best practice guides for landspreading activities. This includes a 'Know Your Waste' leaflet produced with the Environment Agency.

Industry endorsement for the ADBA certification scheme and site based auditing will identify gaps and require operators to have training plans for all staff. They will also have to review their risk management procedures. Environment Agency recognition of the scheme will drive participation and therefore be a huge contributor to a better performing industry.

The NFU has also been involved in the development of the ADBA AD Certification Scheme. It has endorsed it as 'an important tool to help operators of on-farm AD plants meet high environmental, health and safety, and operational standards'.

### **Our response**

It's reassuring the industry recognises the need for increased operator competence on site. Schemes like the ADBA scheme go some way to progressing this. We agree the scheme is well structured. However, the training and responsibility structure must be well defined within the EMS. BAT conclusions for new installations should require this to be demonstrated. For waste sites we feel that the risk is similar and that the operator must demonstrate a sound working knowledge of the process and data interpretation.

We will address the requirement under BAT and look to improve the management condition and guidance on EMS structure and training with industry across the waste sector.

We'll consider the suggestions and take forward agreed ways of improving, linked to guidance. We'll encourage the industry to be involved in the development of operator performance.

We would welcome further options for operators to have the choice of refresher training and perhaps the development of check lists. This is perhaps something the industry can lead on.

Operational risk appraisal (OPRA) itself was replaced by the strategic review of charging. Performance rating will be replaced, but currently the multipliers apply to baseline subsistence which is similar to OPRA.

## **Q6: Permit holders - We would like to know more about who covers the technical competence of your site and examples of training you provide to ensure that the day to day operational process is fully controlled and understood.**

We received 8 responses to this question.

### **Summary of the main points raised**

Operators should be routinely trained in the critical process controls. Then as many staff members as possible will understand the process and the key mitigation measures to take the event of a process failure.

We encourage award enrolment by performance/site/team managers at relevant locations; technical co-ordinators, and on occasion, as a developmental opportunity for higher grade technicians or graduates. This approach reflects the academic nature of the award so that a TCM is typically aligned with job roles with overall responsibility for a site. We have a comprehensive internal training programme for staff that extends both to soft and technical skills, including a formal event learning process.

We have a number of members who have a standard waste permit for their on-farm AD plant and so have had to complete a WAMITAB training course which is a compulsory aspect of holding the permit. The WAMITAB training required is a 4-day classroom-based course and the NFU has had feedback from its members that this training is not tailored for agricultural operations and is overly arduous for the activities being carried out on farm under the above permits.

The main focus of the TCM is to prevent the incident occurring in the first place by their routine inspections and non-conformance reporting. The TCM also provide practical advice on waste management/prevention advice during or following an incident.

Wastewater operation is slightly different to other sectors, as we have specific areas of the process which are covered by the TCM provision, for example sludge handling, gas generation etc. rather than others where the whole operation is covered by a permit. The TCM role is therefore specialised and focused on bio / permitted activities. Incident

management procedures are outlined in standard operating procedures / management system.

### **Our response**

The requirement to have a technical competent person on site is mandatory. However, we will take your points regarding on farm relevance. A gap analysis would be helpful to further develop work with the schemes.

Operations managers should be required to have a sound demonstration of knowledge and process control.

## **Q7: Do you support using a rigorous design, construction and commissioning process to minimise the risk of containment failures?**

We received 6 responses to this question.

- yes: 5 of 6
- no: 0 of 6
- neither agreed or disagreed: 1 of 6

### **Summary of the main points raised**

Adherence to the principles set out in CIRIA are desirable and should be made a requirement of a permit being granted at the application stage.

Plant design and construction at the permitting stage is too late. This needs to be done much earlier, at the initial consultation phase of the project to prevent costly retrospective changes being forced on the project.

The digress of Government subsidies have led to a rush in sites being developed and somewhat back-to-front when it comes to commissioning for example combined heat and power (CHP) engines, gas injection equipment. This has led to sites being commissioned (so, semi-operational) and operating before site drainage and secondary containment has been installed.

Early stages of staff training and development are essential. Staff should be required to have done accredited training before a site is commissioned/operates. In the HSE CDM Regulations the term 'during commissioning' is a grey area. This overlaps with the construction phase and the operations/maintenance phase. More careful co-ordination, communication and management are needed from an early stage of a new site's operation.

Environment Agency specialist teams need to share knowledge and expertise with local officers. They could attend site visits to ensure officers gain experience in complex sites.

The Environment Agency could implement pre-issue audit checklists for permit requirements, such as management system complete; certified training in place. They could implement an auto-online application progress system instead of the desktop application process. For example an online portal for uploading documents and milestone monitoring. An online system would be more streamlined and avoid delays/loss of letters and emails.

Those that skip a vital procedure that later causes a containment failure may well not be working for that particular company or may not be able to be identified. Would there be any reprisal and how would this be brought about?

We would seek clarity as to what would be deemed a 'qualified engineer' to certify the design/construction. Furthermore, the definition 'secondary containment' needs to be clarified to determine what is appropriate and acceptable for different sectors. Our interpretation would be bunds around certain tanks, but also connection to drainage that cannot go directly to ground or surface water.

We support the need for suitably rigorous design, construction and commissioning, but it would need to be proportionate to the size of the AD facility and we would like to discuss with the Environment Agency and other stakeholders who would be best placed to be the assessor of this. Design, construction and commissioning standards form part of the Anaerobic Digestion Certification Scheme (ADCS), so those plants meeting the standards to that Scheme should be seen as operating to high standards, so not needing to provide further information on that.

### **Q7a: If not please state why.**

We received 5 responses to this question.

### **Summary of the main points raised**

It was questioned how the Environment Agency will ensure their staff are suitably knowledgeable to evaluate this? Could the Environment Agency utilise the ADCS to verify this.

It was asked if it would be a pre-operational requirement of the permit.

It was asked if this would require additional permitting charges, given the recent move to charging that is reflective of the Environment Agency's time and material charges.

### **Our response**

It is the permit holder's responsibility to ensure that the facility is designed, constructed and maintained to a satisfactory standard. Especially where design and construction are fundamental to environment risk management. The alternative would be to remove standard rules sets entirely and we would then have to assess all submissions on a case by case basis. We propose that more of the checks and standards are implemented at the design and construction phase.

The industry supports a requirement for design and construction standards. The checks on standard rules permits are minimal and this is reflected in the application cost. However, if we are clear on the standard we expect at pre-application stage then this could reduce any compliance and failure issues later.

With the publication of BAT and BREF some of these standards will be a requirement under the Industrial Emissions Directive under the Environmental Permitting Regulations. The requirement for standards will also fall to the designer and builder to ensure that the site can meet an industry standard from day one. The adoption of appropriate measures is very closely aligned to BAT conclusions.

We have worked with the ADBA on containment guidance and the ADBA published a helpful tool in 2016. We will explore the possibility of the application process and digital transformation to ask for details of design and build provision. We will propose the requirement of a commissioning plan before operation for new plant or where re-commissioning is needed.

We will provide clarity on the requirement for all major infrastructure to be in place before the site is operational. Existing facilities will be given a time period to submit information concerning the validity of the primary and secondary construction, such as non-destructive pressure testing regimes for primary containment. This includes lagoon storage and air management systems.

We consider a chartered civil or structural engineer to be an appropriately qualified engineer.

For new entrants to standard rule permitting we will require that the operator provides evidence on the first year of operation. For existing sites we will ensure that there are options to demonstrate compliance with relevant standards or equivalent or options to ensure that risk mitigation measures are in place.

If we introduce additional assessment for standard rules permits the determination process would be more like the bespoke process. This would mean higher charges and would not be in the spirit of standard rules permitting. Where we can improve and be clear about the standards expected and where sites can be located in less sensitive locations the quicker the permitting process can be.

We're further developing our permit online application process via our Digital Transformation programme.

## **Q8: Can you suggest additional or alternative means of tackling containment failure?**

We received 8 responses to this question.

- yes: 8 of 8
- no: 0 of 8
- don't know: 0 of 8

### **Summary of the main points raised**

Construction to appropriate standards will design out risk. There should be a common standard of construction that all constructors / manufacturers must adhere to.

Containment must be correctly designed at the construction phase. Retrofitting is extremely expensive.

Rigor in design and commissioning and post commissioning inspecting and maintenance. To build a containment system and "walk away" is not good enough.

The Environment Agency should keep a log of poorly designed containment and failure issues and share with industry for reference.

Commissioning is high risk. There should be a probation period or similar to demonstrate competence.

Poor operational standards and maintenance lead to containment loss so there needs to be additional safeguards against poor operational decisions.

Plant operators make running repairs and alterations to infrastructure as the operation inevitably changes, these are done in-house in the most cost-effective manner possible which can compromise the original integrity.

We are concerned about the requirement to provide secondary containment for all structures.

Are the Environment Agency best placed to be the assessors of this or is industry validation and certification more appropriate?

### **Our response**

We are pleased industry recognises the issues we've encountered and that failure is often caused by poor design and then poor or lack of maintenance.

The Environment Agency will release details of failures where we are able. We have shared our findings of the four year AD audit programme with industry. The findings support the concerns of the industry.

In our permit review we will require a greater emphasis on design standard, commissioning, risk assessment and the need for maintenance. We will recommend that Hazard Operability Study (HAZOP) or similar risk assessment should be required for all sites along with a commissioning plan.

Secondary containment is a second line of defence. However it does not replace the need for good operational knowledge, management and rigorous maintenance regimes. Conversely secondary containment is not always required as long as the process control and major infrastructure is inspected and maintained. Using

Construction Industry Research and Information Association (CIRIA) standards can help achieve requirements.

We propose that a chartered engineer should confirm and validate the critical infrastructure at existing and new sites. The chartered status sets a professional standard of which the engineer must follow. There should be an agreed monitoring, inspection and maintenance procedure with the inspection being undertaken by a chartered civil or structural engineer who has experience in the types of structures they are inspecting.

## **Q9: Would any such requirements be better imposed through permit conditions or stipulated in guidance as a necessary part of a written management system?**

We received 10 responses to this question.

- stipulated in the permit: 4 of 10
- stipulated in guidance: 4 of 10
- both: 1 of 10
- neither: 1 of 10

### **Summary of the main points raised**

Permit conditions requiring a certain level of inspection on a regular basis. This could also be included in the management system submitted as part of the environmental permitting application process. To rely on voluntary schemes would not be a sufficient driver.

Competent operators will have a management system in place to manage containment failure risks. It would not be appropriate to include design, construction and commissioning as a permit condition or as guidance for the management system. BAT standards for installations are clear enough with regard to secondary containment requirements. We would suspect that containment failures due to poor design, construction and commissioning applies only to certain parts of the AD sector - the Environment Agency should focus in on these parts.

The Environment Agency needs to be transparent in their requirements from the start. Operators should not have conditions sprung on them or demanded retrospectively - this is costly and not factored into the viability of a specific project.

Permit conditions need to be in place before commissioning. The prioritisation on filling /emptying areas being bunded/contained as well as proper, robust tank containment /bunding is an area which needs greater scrutiny. Drainage plans design needs to be completed early on in the process and the permit application process should have key milestone stages to enforce this with Environment Agency officer with follow-up and

completion checking. Not all surface drainage may get completed until right at the end of the build and commercial pressures to commission need to be considered in terms of risk level and prioritisation decisions using clear, open communication and management meeting minutes /liaison with the regulator.

Such requirements should be stipulated in guidance as part of the management system. This is easier to implement and non-compliance is still covered under the management system condition of the permit.

Asset standards might best be defined in technical guidance so that operators have a degree of flexibility appropriate to their permitted facilities. Permit conditions may prove too generic to cover all circumstances to be effective and commensurate with risk.

If it is not to be a requirement, either directly or through requiring certification to an industry scheme, then the uptake is likely to be limited. The Environment Agency would require additional expert resources if they are to be the body assessing this process and we suggest it would be easier to utilise third party schemes, like the ADCS.

### **Our response**

The commercial pressures to complete a facility should not impact the standards of design and build. Critical infrastructure such as drainage and drainage plans should be in place before commissioning and operation.

A chartered civil or structural engineer should undertake any post construction inspection and so provide written certification that the plant has been constructed as designed. For older sites and aging assets it is also critical that these are inspected by qualified people.

## **Q10: 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, do you think you will have difficulty meeting an industry standard for your design and build, such as CIRIA 736 for secondary containment?**

We received 4 responses to this question.

- yes: 2 of 4
- no: 2 of 4
- do not know: 0 of 4

### **Summary of the main points raised**

There should be a mandatory requirement for all critical infrastructures to be designed by chartered engineers with thorough inspection throughout the construction phase. A requirement for the principles highlighted in CIRIA 736 (rather than CIRIA 736 itself) should be considered in the future as a mandatory requirement for new builds.

Technical Standards Group which owns all Design Standards and specifications for the business and is used by our designers and contractors. The Design Standards comply with BSI and water industry standards.

There would be inherent difficulties in providing this evidence for some sites given their age and the number of modifications needed over time.

If already building to construction standards (and have appropriate certification from installers), stipulation of industry certification for biowaste facilities within permits is not considered appropriate.

Another external examination is not appropriate. There should be a common standard for all constructors to adhere to. This would eliminate extra costly examinations.

### **Our response**

Other sectors, such as landfill, already have a requirement that any certification is provided by a suitably experienced chartered engineer. This step change is about protecting assets and preventing failures especially around ageing assets. We view this intervention as appropriate and risk based.

### **Q10 a: If you cannot, do you think you will have difficulty meeting an industry standard for your design and build, such as CIRA 736 for secondary containment?**

We received 5 comments to this question

- yes: 2 of 5
- no: 2 of 5
- unsure: 1 of 5

### **Summary of the main points raised**

Certification of containment would be costly.

Bunding could be built by a reputable construction company as long as guidelines were followed.

References to CIRIA standards as per oil storage guidance may be sufficient. If a certification requirement were implemented, this could have a knock-on effect in other sectors relying on containment.

### **Our response**

The British standard is CIRIA as a base line. German standards or other standards should be able to demonstrate the equivalent.

We view this intervention as appropriate and risk based.

### **Q11: Permit holders - If you operate an anaerobic digester, do you already carry out regular de-gritting and tank integrity checks?**

We received 7 responses to this question.

- yes: 6 of 7
- no: 1 of 7

### **Summary of the main points raised**

For many plants, the direct (tank cleaning) and indirect (power loss) of tank cleaning makes it a very expensive operation. But excessive build-up reduces retention time, and may ultimately impact on operations/power generation. We de-grit digesters on a 5 to 7-year cycle'.

A written scheme of examination (WSE) should be considered a part of future permits and also retrospectively applied to existing installations as part of their improvement plan.

The operation and management team need to be more involved with the design and permit application process. It's important that the EMS preparation in this area is covered with the addition of staff training, with checks that cover aspects of ways to improve access, safety and operational techniques for the de-gritting process. In summary, the

need for de-gritting may be dependent on the feedstock and should be assessed on a case by case basis and not be a blanket permit condition.

Should the onus be on the operator to maintain their assets to an acceptable standard so as to maximise throughput and protect the environment as detailed in their management system? Any breach of the latter would be dealt with by the regulator.

### **Our response**

We agree, the onus should be on the operator. However, many are failing to initiate measures that prevent risk and failure.

A written scheme of examination should be part of the management system. However, in our experience it frequently is not. The effort the operator applies to ensuring plant (and tanks) are operating as effectively as possible must be an objective of the sector as a whole.

However, faced with loss of containment or catastrophic failure the cost of inspection must outweigh the loss to the business and subsequent impact in the environment.

## **Q12: Do you foresee any issues with making this a more transparent requirement of all anaerobic digestion permits?**

We received 8 responses to this question.

- agree: 5 of 8
- disagree: 1 of 8
- neither agree or disagree: 2 of 8

### **Summary of the main points raised**

The Environment Agency should consider listing these requirements as elements of a written management system – with each requirement accompanied by an auditable (written and recorded) procedure. The permit should not prescribe inspection regimes as this reduces operational flexibility, as well as being a slower process for the regulator to implement.

De-gritting checks / implementation will be specific to each system – so it wouldn't be appropriate to prescribe a specific approach. It should be a requirement of the written management system to include provision for tank integrity checks / de-gritting, and that appropriate records are kept.

A responsible operator should have factored this into their site build and waste intake plan to ensure a tank can be taken offline to be cleaned either as planned maintenance or in an emergency situation.

Having a stipulated frequency within permits would not be cost effective as requirements vary according to material being digested, upstream processes, mixing regimes and types and maintenance programmes. Spills resulting from digesters are not necessarily caused by gritting or tank integrity. These can be caused by for example poor mixing, poor feedstock control and digestion inhibitors within feedstocks.

### **Our response**

We are pleased that de-gritting processes are recognised as being needed for good operational performance and should be included in the written scheme of examination or management system. The management system requirements will detail the operational checks and maintenance that need to be considered to ensure digesters are operating as effectively as possible. The checks would be against the written declaration and records of

evidence that these have taken place. Operators who are compliant notify us ahead of time about their schemes of maintenance.

We will include this in guidance. The design of the plant must take into consideration the range of feedstock the plant is able to operate with.

### **Q13: 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?**

We received 8 responses to this question.

- agree: 8 of 8
- disagree: 0 of 8
- neither agree or disagree: 0 of 8

#### **Summary of the main points raised**

Standby flares should be compulsory. Venting should be discouraged.

Permit requirements should not preclude against the use of alternative, more sustainable technologies to use surplus biogas by making the requirements for a flare obligatory in permit conditions.

Either the use of a standby flare or an alternative solution such as a backup boiler which can operate in the event of the flare not operating due to a power cut should be required. A standby flare may be at risk of not operating in the event of a power cut.

The cost is irrelevant as this is an important safety issue.

#### **Our response**

We welcome the support that there must be a safety mechanism of dealing with gas in the event of an emergency that prevent or mitigates venting. As the respondents appear to suggest that this is already in place at well-run sites, we view the financial impact as being minimal and this requirement should be in place for standard rules permits, or back up boilers as a minimum. Venting must only be used as a last resort emergency measure. Records from supervisory control and data acquisition, systems (SCADA) should be able to demonstrate the release of gas events and reported.

### **Q14: Do you envisage any issues with limiting the flaring of biogas or secure storage of propane?**

We received 8 responses to this question.

- yes: 4 of 8
- no: 3 of 8
- neither agree nor disagree: 1 of 8

#### **Summary of the main points raised**

No operators deliberately flare biogas, as this costs money through the loss of biogas.

The requirement for the secure storage of propane would not be an issue as this is good practice. It should be carried out in accordance with the Liquid Petroleum Gas (LPG) association technical guidance as well as complying with [The Dangerous Substances and Explosive Atmospheres Regulations 2002 \(DSEAR\)](#) regulations.

The entry specification for gas-to-grid plants is very tight and gas not meeting the specification has to be flared to avoid any venting of methane which would be very harmful in greenhouse gas (GHG) terms.

There can be examples of flaring due to the gas grid not having capacity, but again this would be biogas not biomethane. Generally, the capacity issues are such that they stop a project going ahead (there is no capacity) rather than be ongoing problems. There are examples of projects with capacity issues in summer but the operators generally reduce the feedstock loading to make less gas in summer rather than flare it (and receive no income).

The grid companies should be encouraged to be more flexible with gas entry specification to minimise outages. For example, CO<sub>2</sub> is not a gas safety related parameter but Gas Distribution Networks (GDNs) often assume no biomethane can enter the grid with CO<sub>2</sub> >2.5%. If the GDNs allowed short term excursion to 3.5% say (natural gas could be >4%), then this would be helpful. It would be good therefore if the Environment Agency encouraged GDNs to be more flexible where there is no safety issue.

If it is proposed to apply limits to flaring that are more stringent than those currently outlined in permits and in standards, this will have an impact. Clarity on the extent of such limitation would be needed to understand the impact.

Our standards allow for 2 hours' storage of biogas, it's unlikely that further storage would obviate flaring. Rather than controlling gas storage and flaring frequency via permitting, ensuring Gas-to-grid schemes are sized to match capacity within the gas network would better achieve the above objective. Use of CHP or other beneficial use for residual biogas produced would reduce flaring.

The rule should be implemented by limiting flare use during standard operation, not by mandating a level of gas storage. This will allow operators to choose whether it is better commercially to implement gas storage or to reduce production during periods of low demand.

### **Our response**

We suggest that all plants must have additional auxiliary CHP capacity to be able to use gas in a more productive way. Or have a capacity to slow feed and reduce the rate of gas production. This can be covered in management system requirements and will be included in guidance. We accept that flaring would be limited to non-standard operations and must be minimised. The gas to grid debate is not in the Environment Agency's remit. However, flaring of gas that does not meet with gas to grid specification is a disposal activity.

We will include the specification for safe storage of raw materials and demonstration of adherence with DESEAR within the permit conditions.

## **Q15. Permit holders - Would your facility require additional gas storage if such a condition was imposed? If so, what will be the cost?**

We received 7 responses to this question.

- yes: 7 of 7
- no: 0 of 7

### **Summary of the main points raised**

Retrofitting gas storage on sites may prove difficult due to space constraints. We have worked with our provider to increase pressure in gas grid to increase storage and also to

ensure that our injection takes the lead signal over the national upstream network. The best option would be for the provider to manage grid capacity and guarantee capacity to the AD site in a similar way to electricity.

All permit holders would require additional storage as you can only divert small amounts of gas back into biogas storage. If the biowaste to gas plant was to be stopped and biogas accumulated then quite large stores would be required and there would need to be signalling from the network to indicate when network was full and available. Storage requirement would depend on length of time the network was unable to accept gas which would vary by location so gas storage volume could not be standardised.

A more acceptable solution would be for the gas network to manage grid capacity in such a way that they guarantee capacity to a site in a similar fashion to the way electricity networks are managed.

Contingency gas storage is beneficial for a number of reasons, including downtime and loss of revenue from flaring. The use of gas bubble (ground level) storage bags is a relatively inexpensive solution.

### **Our response**

We suggest that operators ensure necessary contingency measures are in place to use and limit flaring; use gas on site in a CHP unit or generator; or to utilise gas produced. The rule will aim to limit flare use during standard operation.

Where flares are used because of poor gas quality then the operator would be required to understand and rectify this situation to reduce flaring periods as soon as possible and record flaring activity. Whilst the gas networks stipulate in contractual arrangement the quality of the gas this is not a direct responsibility of the Environment Agency.

## **Q.16: We propose that in future, ammonia rich feedstocks and digestates should be stored in containers or lagoons which are designed to minimise ammonia loss. What are the technical challenges of such a requirement?**

### **Q16a: Have you any data to demonstrate the efficiency of abatement technologies that you have used?**

We received 8 responses to this question.

#### **Summary of the main points raised**

Retrofitting covers on existing lagoons can be challenging and expensive to do.

All new farm AD installations should have rigid covers on their storage facilities. Existing farm AD plants should have the option of installing floating covers which generally are effective but allow rain to mix with the digestate.

AD plants should be able to provide data that demonstrates that gas emissions including ammonia from the plant itself are well contained. A REA survey of members showed that just under 70% of respondents have covered storage and a number of the others not currently covered, have plans to cover them in the near future.

Any change relating to storage of ammonia-rich feedstocks should be implemented across the board (since the same feedstocks could probably be stored on field headlands without covering). Initiatives to reduce ammonia emissions from feedstocks and digestates are fully supported. The use of lagoon storage without lining (man-made) and covers should be deterred (especially for exemptions) as leaks or cracks cannot be controlled or detected. Seasonal temperature variations mean these risks are more pronounced.

Digestate and ammonia rich feedstocks should follow the same standards as silage and slurry (SSAFO regulations) as they potentially pose the same risk to the environment.

Special consideration needs to be given to the smaller (< 80kW) AD operators. These smaller systems should be encouraged as the multiple benefits will likely outweigh the minimal ammonia emissions emitted from the store. Careful consideration must be taken to ensure that added regulation does not hinder growth of these types of progressive technologies.

Digestate from crop feedstocks is likely to have lower nitrogen levels than digestate from food waste feedstocks and so are likely to have lower ammonia levels. Incorporating crop residues in digestate helps reduce ammonia (as well as CO<sub>2</sub>), though it may stimulate NO<sub>x</sub> which can be mitigated against using inhibitors. Policy could support the adoption of such best practice.

Digestate is always considered as the “poor cousin” in relation to the intake of feedstocks and production of biogas, and costs are minimised wherever possible. Lagoons and stores should have an impermeable cover to minimise rain water ingress and ammonia emissions, such as a rigid roof or highly engineered flexible cover.

Ammonia stripping and dewatering of the digestate is an emerging technology we are investigating. It could reduce quantity and hence storage capacity, reduce ammonia emissions and provide water that can be recirculated for dilution of incoming wastes.

DEFRA have already proposed a “requirement for all slurry and digestate stores and manure heaps to be covered by 2027” in the Clean Air Strategy.

On the request of Defra, ADBA and the Renewable Energy Association worked with respective members to undertake a survey of digestate spreading. The results show the AD industry to be broadly operating in accordance with what Defra identifies as the ‘key measures to control ammonia emissions from farming’.

The proposed measures put forward in the farming chapter of the Clean Air Strategy (from where this Call for evidence appears to take its lead) as proportionate to the size and importance of the issue, but only if the farming sector is supported in tackling the issue with sufficient financial assistance. This need not be grants necessarily – we appreciate that ammonia emissions may be identified as a polluter pays issue – but tax breaks for equipment or loans would be necessary to adopt the key measures identified and we encourage Defra to support farmers as they do their part to improve UK air quality.

All digestates have an ammonia content and when poorly managed can contribute to ammonia emissions.

The technical challenges arise from off-site storage, intermediate storage and spreading activities. Best practice involves a covered storage facility such as a tank or covered lagoon, and trailing hose/shoe/injection of digestates. Covers for lagoons can be as basic as straw/floating materials which are the cheaper option and offer low levels of abatement.

Several approaches have been taken to reduce the quantity of ammonia contained in digestate. A starting point is the Waste Resources Action Programme research on Enhancement and treatment of Digestates.

Some examples of other abatement technologies include:

The wastewater sector, where ANITAMOX are used to help achieve required ammonium/ammonia loadings. Though to date these have not been to prevent ammonia emissions to air, such technologies could be adapted to safely remove loadings from digestate in situations where best practice in land application cannot be employed.

The winners and runners-up of the AD Industry Awards category “Best Methane or Ammonia Emissions Management Project” in 2018 - Winner: HoST - Recovering Minerals from Manure and Reducing Ammonia Emissions, Highly Commended: J F Temple & Sons Ltd - Ammonia Emission Reduction at Copys Green Farm, and Shortlisted: Centriair - Centriair for Methane and Ammonia Emissions. See <http://adbioresources.org/events/awards/awards-2018/>

CCM Technologies, which can incorporate ammonia and carbon dioxide into digestate fibre, producing a quality fertiliser product. See <http://www.ccmtechnologies.co.uk>

An Xergi project in Ballymena, Northern Ireland, which uses the innovative nitrogen stripping technology of Byosis to allow the plant to use up to 100% poultry litter and will be one of the first anaerobic digestion plants in the world able to do so. See <http://byosis.com/en/references/under-construction-xergi-ltd-ballymena-ni.html>

Both precision application methods reduced NH<sub>3</sub> emissions from food-based digestate by 40–50% in comparison with the surface broadcast treatments, with shallow injection more effective than trailing shoe (P < 0.05). See <https://link.springer.com/article/10.1007%2Fs10705-017-9884-4>

## **Our response**

The ammonia inventory currently assumes all digestate is kept in covered stores, which we know is not the case. In reality, emissions from digestate storage is underestimated. Defra is currently reviewing this part of the inventory. Covers on digestate stores are highly effective; evidence suggests up to 95% abatement compared to an uncovered store. No evidence of costs were provided by REA. Storage of PAS 110 should be included.

There could be a requirement for all storage to be considered in an ammonia reduction or management plan. Covering heaps of solid digestate/manure was a proposal in the draft Clean Air Strategy. Ministers are currently deciding if this is the best option.

The proposed requirement to rapidly incorporate material to come into force was proposed in 2025 in the Clean Air Strategy. Covers will have zero benefit if the material is then applied to grass/crops with a splashplate. Defra have done a cost benefit analysis of some AD methods (as yet unpublished). These will be reviewed. Low emission spreaders, store covers and rapid incorporation generally are the most cost effective options.

New sites will be required to cover stores and high ammonia waste.

Sites with planning proposals should include covers and storage into their planning applications. These will be required by the permit. Reduction by other measures, for example floating covers may be permitted in existing sites.

The REA survey responses was based on 42 responses only. They appeared to be from operators who are willing to carry out additional measures to control emissions. The requirement for ammonia reduction plans would be part of the management system in the future. Operators will be required to put all available measures in place to reduce air pollution from ammonia releases.

Lagoons should meet SAFFO requirements at a minimum. Additional storage control should be applied to meet relevant objectives. CIRIA standards of design are acceptable. In future all lagoons should be constructed to a design specification with a scheme of inspection specific to that site. Existing sites should be prepared to undertake a scheme of inspection to ensure the storage is fit of purpose. We will consider with Defra the impact on non-permitted sites including those with exemptions.

Separation of solid digestate means dry matter >15% and stackable - this is inexpensive to cover and of less cost than lagoon covers.

Ammonia stripping and dewatering of the digestate is an emerging technology that we are investigating. It could reduce quantity and hence storage capacity, reduce ammonia emissions and provide water that can be recirculated for dilution of incoming wastes.

## **Q17: What alternative measures might be considered to reduce nitrogen losses to air?**

We received 4 responses to this question.

Continued encouragement of grants for low emission spreading equipment, encouraging best practice spreading would help 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, that is 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.

Low-emission spreading equipment like a trailing shoe, a trailing hose or injection for digestate application will assist greatly in reducing volatile emissions during application of digestate. There are also emerging technologies for the stripping and dewatering of digestate which would assist in reducing the quantity of storage capacity required, reduce ammonia emissions and provide water that can be re-used in the dilution of incoming waste.

The loss of nitrogen to air is not considered to be a significant issue.

### **Our response**

We note these responses. Grants are not in the Environment Agency's remit.

## **Q18: Would digestate storage capacity equivalent to 2 months of production be sufficient to ensure resilience in the digestate production and supply chain?**

We received 8 responses to this question.

- agree: 1 of 8
- disagree: 7 of 8

### **Summary of the main points raised**

2 months storage is unlikely to be sufficient. The answer is dependent on how the sector is regulated in respect to autumn application of digestate and low readily available nitrogen (RAN) materials to stubbles. If this activity is to be curtailed in line with RB209, then in areas that are dependent on stubbles to empty lagoons before the closed period, 6 months storage may be adequate, 2 months would not. All plants should be able to contractually speak for a minimum of 4 months storage to cope with climate resilience.

It's possible that some standard rules permits will not have sufficient space for such a storage requirement (in excess of 6 months) and as a result have to move to a bespoke permit.

A more flexible solution for AD plants would be to provide a digestate management plan as part of standard rules requirements. This would fit with the new Farming Rules for Water protection measures.

Operators and those building new facilities should be thinking about and incorporating the whole process, not just the biogas yield. There should be no requirement to provide storage on the site of the AD facility, since third party contractors can already provide a range of off-site storage.

We target 60 days storage on our sites but not every site can accommodate storage equivalent to 2 months due to space limitations. Biosolids products have a low readily available nitrogen content and consequently pose less of a risk of ammonia loss than high readily available nitrogen manures such as livestock slurries, digestate and poultry manure. Field storage before application is an important management practice as it allows biosolids to be spread at times when the nutrients supplied are most beneficial to crops (and soil conditions are appropriate to avoid structural damage or diffuse pollution).

On-site storage for digestate is something that is quite clearly not currently considered during the planning or permitting process. Many sites have a requirement for digestate to be removed from site on a daily or weekly basis to ensure continued operation and rely on a “just in time” management approach, especially through the NVZ closed period for spreading which can run from as early as August to the following February. 2 months storage on-site would mitigate against this issue for a short time, but it would still be filled quickly with digestate and would not be used properly, instead become an extension of the digestion process. The only way to ensure on-site storage would be utilised specifically for its intended purpose would be to install tanks or lagoons that do not have the technology and hardware also installed that enables them to be slowly integrated into the digestion process. It may also make the footprint of any proposed site a lot larger than is required for process tanks alone, and this may lead to difficulties in the planning process.

Better managed via contingency measures rather than through permitting. As a WaSC, we deal with a large volume of sludge, number of farmers and as a result we have experience and knowledge of managing our land bank to avoid instances of inability to recycle to land.

### **Our response**

We suggest that the operator must demonstrate contingency measures for storage in closed periods as part of the management system under digestate and leachate management.

Having PAS 110 status should not make a difference for the need to minimise ammonia and emission release.

We propose to amend the permits and withdraw the RPS on digestate drying requiring abatement.

NFU suggests that a 4 month storage requirement would bring AD in line with slurry storage. We acknowledge that implementing this may be difficult for some operators. However, for new facilities the design for contingency measures should be in place.

## **Q19: What alternatives to on-site storage might be preferable to deliver resilience?**

We received 7 responses to this question.

### **Summary of the main points raised**

Off-site storage in well-located lagoons or tanks is highly desirable. It enables regular off takes from the producing facility (rather than significant vehicle movements during the

spreading period), and facilitates timely application to land through local “campaigning” - more can be spread in a day from a lagoon surrounded by farmland than from a digester many miles away. The use of ‘hippo’ bags is becoming more popular as they provide a mobile storage solution and add resilience to a site’s storage challenge.

The use of digestate evaporation or thickening (using the CHP engine exhaust gas heat) as a mechanism for reducing digestate volumes and providing greater climate resilience.

On-site storage of digestate is totally unnecessary, if an AD operator can demonstrate that digestate is being stored off-site at an appropriate facility. This should already be covered under waste duty of care. The fundamental issue is that matching digestate application times to coincide with crop demand is extremely difficult – and weather conditions can make future planning almost meaningless.

Well-constructed, appropriately permitted off-site storage close to the place of digestate usage would be the better option for storage. A network of smaller stores throughout the landbank offers resilience and operational benefits, as spreading periods are traditionally hectic, and transporting large volumes of digestate on the highways with time pressures can lead to an increased risk of incidents and accidents.

Use of digestate drying (could with ammonia scrubbing) allow for the reduction of stored digestate. Leading to more timely applications, when crop /soil actually require nutrients.

Temporary field storage tanks/bags

### **Our response**

Noted.

## **Q20: Requiring air streams to be stripped to produce valuable ammonium - do you agree with these proposals? Please give reasons.**

We received 5 responses to this question.

### **Summary of the main points raised**

The review of the permitting system should focus on ensuring installations are built to adequate standards and can demonstrate they are well run and maintained. In the case of these facilities, they should not pose significant environmental risks.

Stripping air streams from digestate driers is technically feasible but may not be economically justifiable. Abatement is more important – air streams should either be appropriately filtered or stripped.

These systems can be costly and new requirements such as these proposals mean retrospective costs imposed on AD plants that were not expecting them. So any new requirements should again be supported by financial support.

Air abatement is an area that can see the minimum amount of financial input necessary to comply with environmental or health and safety requirements. Biofilters are commonly used and left to deteriorate long after the recommended timescale has elapsed for media replacement. Sites are often left to decide on their own methods for air abatement, leading to widely varying levels of efficacy and problems for sensitive receptors if the technology installed cannot cope as plant operations inevitably increase over time. One example is an abatement system designed on a waste input/operational tonnage of x tonnes per year, and over the next 5 years following permit issue the site increases their throughput by 100%, but the abatement system has not been upgraded to deal with this.

## **Our response**

We have allowed the drying of digestate in permits but the emissions have been covered by a Regulatory Position Statement (RPS) to cover an interim period. That RPS states clearly that any existing drying facility will require abatement. Therefore compliant sites who adhere to the RPS will not be retrofitting. We are removing the RPS and will include abatement for digest drying within our permits should the operator choose to use this additional step.

The air from these systems is a point source emission and so must be managed and monitored.

Operators should be able to show that air abatement technology on site is fit for use and designed to reduce or eliminate polluting off-gases and odours. We do not see the need to supply design details and qualification on submission as an added financial cost.

## **Q21: 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.**

We received one response to this question.

An operator has successfully used their a bio-catalyst product to abate odours on a number of composting sites in England and is currently trialling this material on a 70k tonnes facility which has had significant issues with odour. The REA proposes to produce case studies for these sites. Initial findings have been extremely encouraging. The REA is aware of the scepticism surrounding 'compost additives' but this appears to be a game changer. This product which uses a Bio-Catalyst technology has been used in Australia and the United States of America very successfully.

Abatement should be in line with the BAT requirements in the revised waste treatment BREF.

## **Our response**

We will want to ensure that all abatement technology is designed to treat the gas and emissions it needs to mitigate. This would mean design and construction by suitably qualified experts.

Measures for ensuring correct capacity and operational controls are well established and have been well documented in the past. There should at this stage for sites who use abatement technologies be no costly retrofit.

## **Q22: We propose that separating clean and dirty water is mandatory. Do you agree with this proposal? Please give reasons.**

We received 9 responses to this question.

- agree: 2 of 9
- disagree: 7 of 9

## **Summary of the main points raised**

We support the collection of rain water but doing so should not be mandatory.

Keeping clean and dirty water separate is a basic issue. Storage and on-site usage of clean water may be taking things a little too far for some operations and veering away from the basic fundamentals for running an AD operation. Storing clean water in a contained lagoon/pond for fire-fighting purposes on site may be a financially viable option.

Better met using guidance for best practice rather than permitting requirements.

Yes, rainwater harvesting technology is a viable way of reducing the reliance on potable water.

### **Our response**

We have considered the comments carefully. During the last few years we have been met with extremes of weather. Both flooding and excessively dry spells.

For installations there is a BAT requirement to ensure water usage is maximised. Therefore this will be a requirement of resource management within the permit in the future. It should be possible to build all new installations to ensure clean water is harvested.

Allowing clean and dirty water to mix in lagoons adds risk from over-topping and losing capacity in storage.

Existing installations will have a lead-in time to adopt BAT or suggest alternative measures. We will include in our guidance what we believe alternative measures to be.

We would expect existing sites to harvest and reduce waste waters where the cost is not excessive. Existing waste sites would need to demonstrate that this has been considered and the permit will continue to stipulate that lagoon storage and tank storage will have sufficient free board.

### **Q23: Can you suggest any alternatives?**

No responses received.

### **Q24: Location of sensitive receptors - which of the 2 measures do you prefer? Please give reasons.**

(i) increase the setback distances

(ii) require all sites within 10m of a watercourse to have secondary containment designed to an appropriate standard

### **Q24a: Can you suggest any alternative approaches to protecting the water environment?**

We received 11 responses to this question.

#### **Summary of the main points raised**

We would rather see a combination of both measures required, depending on site-specific location issues. We also feel standard rules permits for an AD activity are too low in their level of environmental protection generally and would like to see all AD activities controlled by bespoke permits that properly take into account site location.

Any additional restrictions on distance to sensitive receptors should be based upon risk. A blanket change in all circumstances is unnecessarily onerous and costly when it is likely that there are specific operations that should be targeted.

Requirement for all sites within 10m of a watercourse to have secondary containment designed to an appropriate standard. Or secondary containment (such as a bunded area)

which provides additional surge and jetting protection in event of primary containment failure.

### **Our response**

The consultation responses were mixed. We received no clear evidence to countermand the proposals.

The permit already assumes there will be secondary containment unless other methods are used such as primary containment.

In terms of suppressing or minimising issues of odour and other amenity issues, in our experience the set-back limits are always sufficient. However, if all appropriate measures are taken, these impacts, regardless of distance should be successfully minimised. Enclosure of all sites is not the most effective solution, as this in itself brings significant issues. If the whole cycle is carefully managed and all appropriate measures adopted prolonged exchanges over the quality and coverage of the management system and odour management plan is avoided. We intend to publish guidance on what we believe appropriate measures to be.

We acknowledge that treating organic waste is not an odour free process but there is room for improvement. BREF and BAT conclusions will apply to installations.

## **Q25: Protecting the water environment - which combination of measures do you prefer? Please give reasons.**

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.

### **Q25a. Can you suggest any alternative approached to protecting the water environment?**

We received 7 responses to this question.

#### **Summary of the main points raised**

The preferred option would be measure i) ensuring that a qualified engineer signs the drainage infrastructure as being fit for purpose. This should not exclude an operator from using some of the other measures suggested such as using flow meters and shut off valves. However this should not be prescriptive but left up to a qualified engineer to determine the level of risk for each part of the site and ensure that adequate protection is in place. All installations should be constructed in such a manner that there is an impermeable membrane or barrier to prevent groundwater contamination.

Option (i) covers all engineered aspects. Option (ii) covers infrastructure that cannot be seen to be leaking, so gives an indication something is happening before any leak is visible (by which time there could be more than a leak, it could be a major pollution incident. Option (iii) enables other parts of the site to be isolated.

I'd like to see a combination of all three requirements where construction is required.

### **Our response**

Responses noted.

## **Q26: Sensitive and protected areas - do you believe that these set back distances are appropriate / adequate? Please give reason for you answer.**

- 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

We received 9 responses to this question.

### **Summary of the main points raised**

They are adequate as long as a plant has suitable design and adequate construction quality, maintenance schedules and incident response procedures.

We would prefer all activities to be regulated via a bespoke permit where sensitive and protected areas can be given proper consideration.

In light of the 'considerable impacts' noted by the review of incidents referred to under 'Location of Sensitive Receptors' (page 13) we would advocate both of the following measures:

- a doubling of the current setback distances for 'sensitive and protected areas'
- the application of all 3 of the options listed under question 24 with regard to 'sensitive receptors'

Guidance concerning when a survey is required as part of a development project states that a survey should be undertaken if the development site is within 500m of a waterbody that could support local population. We suggest that 500m is therefore a more suitable setback distance to apply within standard rules permits as this can be considered a more adequate buffer.

### **Our response**

The standard rules permit already considers immediate sensitive receptors. Correct design and stringent management means sensitive receptors should be adequately protected.

## **Q27: Waste tonnage - Do you support this approach? Do you foresee any difficulties with this suggestion? Please give reasons.**

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.

We received 8 responses to this question.

- agree: 6 of 8

- disagree: 2 of 8

### **Summary of the main points raised**

This seems a sensible approach, as long as stated tonnes are reflective of the true design tonnage and are not overstated by the operator. It makes more sense for the planning and permitting conditions to be evenly matched.

The granting of an Environment Agency permit should take into account the plant's safe design capacity. Local planning authorities are not always best placed to assess this. It should be the Environment Agency's remit to assess the maximum permitted level of a plant. The Environment Agency is the competent authority on this matter.

We support limiting the capacity to that within the design capacity. We question how the planning permission can be technically sufficient, those granting planning permission are not plant design experts.

Supported if any subsequent increase in design capacity could trigger a no-cost amendment to the permit (providing the facility still complies with the other requirements of the standard rules).

### **Our response**

Noted, thank you.

## **Q28: Waste codes - would you have any concerns if these waste codes are removed from standard rules? If so, please explain.**

We asked if removal of some waste codes would present difficulties to the operation or the quality of the outputs. These are often codes that are mis-described. We also considered four waste streams that are on standard rules permits or Quality Protocols and looked at the risk elements of these. Where they are not clearly defined or evidence is lacking we propose to remove these wastes:

- 04 01 textile industries wastes from the leather and fur industry
- 07 chapter wastes from organic chemical processes - glycerol waste from bio-diesel manufacture from non-waste
- post-consumer wood
- limit the input of invasive species

We received 7 responses to this question.

- yes: 4 of 7
- no: 3 of 7
- unsure: 1 of 7

### **Summary of the main points raised**

Glycerol waste (07 chapter waste) is a beneficial fuel source for AD. It should continue to be allowed on a bespoke permit provided that the operator can demonstrate adequate control of organic loading rates to the digesters.

We would have no worries about invasive species spread where AD systems include pasteurisation. If the Environment Agency are concerned about farm AD plants, then an additional digestate test would need to be implemented – with a range of implications.

We welcome the removal of these codes from standard rules permits but would reiterate our point that permits should all be bespoke, with these codes no longer included. There are safe, viable alternative routes for these wastes to be disposed of.

We are currently working on a project exploring the opportunities to use waste biomass arising from the management of road side verges. The project initially explored how the biomass could be used, and very quickly AD seemed the most pragmatic solution. Lincolnshire County Council are looking to improve the quality of its verges for biodiversity purposes alongside exploring the opportunity to generate an income from managing verges using the cut and clear method. This year we have run the first full scale trial to establish the viability of the model. The trials have proved successful. The complexities of permitting are a long term risk to the project. At present we are not able to continue the cut, collect and digest regime due to the lack of appropriate classification for the biomass from roadside verges.

We do not foresee any issues with removing these wastes from the standard rules permits. However, the way waste is classified could be a potential barrier to technological innovation, farm business diversification, rural job creation and net biodiversity gain through enhanced vegetation management of the green infrastructure along the national transport network 'soft estate'. The need to ensure the quality of feedstock for anaerobic digestion is recognised and a balanced and proportionate approach should be taken to ensure environmental improvements can be gained at each stage of the process (waste in and waste out). Sampling of the material harvested and digested is already carried out which should prevent contaminated material going to land. Further clarity on the waste types that can be accepted would be helpful.

### **Our response**

The call for evidence considered all biowaste facilities not just AD. With composting we have restricted the inputs of these waste. This has been successful as there have been no reports of invasive species being spread by use of composts to date. No evidence has been put forward that the residence time in pasteurisation at AD plants could effectually limit the risk of spread. Therefore at this time we will take the view that these invasive species are avoided.

We welcome any opportunities to work with partners to progress these issues and find innovative solutions.

Regarding the quality of material from verges, we are already working with the stakeholder on this. There is a risk of contamination, such as hydrocarbons, metals and particulate matter. These waste inputs may have to be taken on a case by case basis. We are already considering your submitted trials data.

We will remove these waste streams from the standard rules permits. However, should more information concerning risk become available in the future, we will reconsider. We aim to improve the quality of material to land.

We will amend the wording on invasive species to exclude plant material that is considered higher risk.

## **Q29: Do you think expanding waste acceptance conditions to include pre-acceptance and waste sampling programmes could drive improvements in feedstock quality?**

We received 6 responses to this question.

- yes: 2 of 6

- no: 2 of 6
- unsure: 2 of 6

### **Summary of the main points raised**

There is clearly a significant issue here for composting as sites continue to receive an excess of plastics within their garden waste deliveries. There needs to be greater pressure imposed on the collection authorities to ensure that only target material is collected. Currently the emphasis is all on the operator, when in reality they have to get on and compost what they are supplied with if they are to retain the contract. AD and some in-vessel composting (IVC) sites can be different, as many sites actively encourage the collection and delivery of food waste in a wide array of packaging, as this will be dealt with by the facility on its arrival through sophisticated de-packaging units. An active campaign by the Environment Agency with local authorities and a more collaborative approach to this would assist in spreading the message. The local authorities have a duty of care to provide fit for purpose material to the biowaste sites if they are to produce a quality output.

Greater reinforcement of the Duty of Care Regulations for the waste producers would be beneficial and although this is already a requirement, it appears there is not sufficient credence given to this by both the regulator and accepting site. Facilities have a responsibility to incorporate stricter demands into their commercial acceptance process before waste contracts are accepted and delivery sampling operational procedures employed. This would assist in driving better standards and behaviour of waste producers in complying with requirements.

Waste carrier licence holders are often not diligent enough when it comes to exercising the Duty of Care regulations and neither is the supply chain when it comes to approaching the supplier (the paying customer) about such as quality, consistency, contamination. This will not voluntarily improve and it is too easy to obtain a waste carrier licence without too much up-front checks and balances. Additional checks need to be enforced in this area to assist in improving the quality of inputs to all waste sites.

There may be sufficient variation in the characteristics of waste inputs and the treatment technologies adopted, that a blanket approach might land unnecessary costs on some sectors by assuming a one size fits all. A better, more targeted, approach might be the use of Improvement Programmes (IPs) either at application stage or where individual site performance is identified as needing improvement.

Most permitted AD plants also meet the requirements of PAS110. Unless there is a proposal to introduce stricter regulatory limits, is the sampling and monitoring required under PAS110 sufficient?

No. This issue should only apply to sites that accept a range of different and variable wastes (merchant AD facilities). For sites such as sewage sludge AD plants where the feedstock is well characterised and of low variability it should be recognised that such requirements should not be applied.

### **Our response**

The issue of plastic contamination is a long term problem that has blighted the market for end use. The issue of confidence in the end market is of growing concern and we believe that more can be done upstream to ensure that feedstock's are of higher quality. We believe that such a condition or exclusion of plastic waste, allows a stronger link with enforcement of Duty of Care. It is the operator's responsibility to ensure that pre-acceptance procedures are robust and fit for purpose. Pre-acceptance procedures should be linked to any contracts between the waste producer and the operator. We rarely receive reports of rejected waste at sites. This leads us to believe operators are simply

trying to cope with poor quality rather than being empowered to state it is a permit requirement. We will propose a limit on incidental plastic in feedstock.

We are currently considering the limits of PAS 100, PAS 110 and we're reviewing the Quality Protocols to ensure the level of plastic is minimised and that we build the confidence of the end market user.

### **Q29a: Would guidance on upstream waste auditing and planning waste acceptance assist?**

We received 9 responses to this question.

- yes: 6 of 9
- no: 3 of 9

#### **Summary of the main points raised**

No guidance is required, sites are well aware of what acceptable feedstock is and what is not. What is required and where intervention is required is that waste producers separate more effectively (so that the responsibility passes from the receiving waste processor to the primary waste producer).

Yes, can the Environment Agency reuse anything that has been produced by the Scottish Environment Protection Agency (SEPA)? Can there be a whole-chain approach like in Scotland? This shares the responsibility among all parties which is likely to be most effective and would hopefully create a better joined-up approach.

We strongly agree that pre-acceptance and waste sampling programmes should be included in permitting requirements. To rely on voluntary initiatives and digestate sampling is not sufficient. And to identify poor quality digestate means any issue is identified far too late in the process. The PAS110 scheme does have some requirements, but these are not rigorously enforced, and do not cover the operators that do not certify via PAS110/ADQP scheme.

No. This issue should only apply to sites that accept a range of different and variable wastes (merchant AD facilities). For sites such as sewage sludge AD plants where the feedstock is well characterised and of low variability it should be recognised that such requirements should not be applied.

Yes, guidance that is readily available is to be welcomed. Also getting answers to questions on all matters would be helpful. Including 'what if' questions, answered with a definitive yes or no which immediately clarifies the position.

Yes. Guidance that can support training is, of course, absolutely essential. Furthermore there needs to be a mechanism that could streamline the transfer of information around innovation in feedstock development in both directions such that new feedstocks are appropriately characterised and provided relevant audit support.

Improvements in this area should be dealt with through guidance notes rather than changes to permits. These tasks should be incorporated into a commercial acceptance process before waste contracts are accepted and delivery sampling operational procedures employed. This would assist in driving better standards and behaviour of waste producers in complying with requirements.

No. Unless worded correctly, the guidance would be too long or too vague.

#### **Our response**

BAT for installations already requires pre-acceptance auditing and stringent acceptance. The installations permits will be amended to fully incorporate BAT.

Guidance (How to comply with your permit) was reformed as part of the Smarter Guidance project. Most of it is available via GOV.UK. We are working towards rewriting technical guidance for composting, anaerobic digestion and MBT. Doing this should help operators comply with their permits and operate their facilities competently.

### **Q30: Would there be any problems with us making the differentiation with treatment activity?**

We received 4 responses to this question.

- yes: 3 of 4
- no: 0 of 4
- unsure / neither agree or disagree: 1 of 4

#### **Summary of the main points raised**

Yes, there could be problems associated with the differentiation as there is nothing specific in the consultation document about the definition of treatment and/or stabilisation nor the context as to why the split is proposed. What environmental improvements would this proposal bring? What types of activity does the Environment Agency specifically define as treatment and stabilisation and why is this change deemed necessary?

SR2012 No 11 currently omits sewage sludges from its list of acceptable inputs (although sludges from biological treatment of industrial waste water are included). To help align with Ofwat aspirations for sewage sludge as a resource, it would be helpful to include this material in relevant standard rules permits: 19 08 05 sludges from treatment of urban waste water.

Yes, this may result in some sites requiring two permits where previously they would only have required one. This will have permit cost implications.

#### **Our response**

There are a few reasons to amend this standard rules set. Currently the standard rules permit does not differentiate between industrial emissions directive (IED) and waste operations. This is out-of-line with the rest of the waste industry. The permits allow any number of treatment processes. AD, composting and so forth. There are different controls and emissions around different processes. It's possible that we can develop further sewage sludge standard rules permits to accommodate a combination. We will consult on sewage sludge permits later in the year. This will take into consideration the Ofwat aspiration to widen the sludge market and a further review would actually make this easier for the waste sector to enter.

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