Scottish Environment Protection Agency
Buidheann Dìon Àrainneachd na h-Alba

For the future of our environment

EASR DRAFT Guidance: Schedule 26 Non waste anaerobic digestion

Approved Draft July 2026

Draft Guidance for the non waste anaerobic digestion

Contents

1. Introduction

This guidance applies to the anaerobic digestion (AD) of non-waste materials and associated activities with a treatment capacity of more than 100 tonnes per day.

This activity is regulated under Schedule 26, Part 3, Chapter 5, paragraph 69 of the Environmental Authorisations (Scotland) Regulations 2018 (EASR).

Anyone carrying out, or intending to carry out, this activity will require an EASR authorisation from 1 April 2028.

The level of authorisation depends on the scale of the activity:

- Anaerobic digestion of non waste up to 100 tonnes per day
- Anaerobic digestion of non waste over 100 tonnes per day

This approach aligns non-waste AD with the regulatory structure for waste AD and provides a consistent, proportionate and risk-based framework across the AD sector.

This guidance is for applicants and authorised persons. It explains the standards, measures and supporting information SEPA expects to be considered when designing, operating and managing a permitted non-waste AD activity over 100 tonnes per day.

This guidance does not apply to:

- AD using waste feedstocks; or
- non-waste AD activities authorised at registration level.

If you operate a waste anaerobic digestion plant you can apply on our website.

- Anaerobic digestion of waste up to 100 tonnes per day
- Anaerobic digestion of waste over 100 tonnes per day

2. What this guidance covers

This guidance covers the main environmental controls for non-waste AD activities over 100 tonnes per day, including:

- feedstock status and classification;
- feedstock pre-acceptance, acceptance and handling;
- storage and handling of feedstock and digestate;
- process control;
- biogas collection, storage, treatment, use and flaring;
- effluent collection, treatment, recirculation and discharge;

- emissions to air, water and land;
- odour, noise and other amenity impacts;
- containment, drainage and infrastructure;
- accident prevention and incident response;
- monitoring, records and reporting;
- environmental management systems;
- outputs and associated activities; and
- appropriate measures and best available techniques.

The guidance should be used alongside the application form (not available yet), any relevant SEPA application guidance, and the relevant Waste Treatment Best Available Techniques Conclusions identified in Annex 1.

3. Overview of anaerobic digestion

Anaerobic digestion is a managed biological process in which biodegradable feedstock is broken down by micro-organisms in the absence of oxygen.

The process produces biogas and digestate. It may also produce process effluent, condensate and other liquid streams that need to be collected, recirculated, treated, discharged or otherwise managed.

Biogas is mainly a mixture of methane and carbon dioxide. It may be used on site, for example in a combined heat and power unit, or treated further for other uses such as gas grid injection or use as vehicle fuel.

Digestate is the residue from the anaerobic digestion process. It may be suitable for use as a fertiliser or soil conditioner where it is appropriately managed and used.

The digestate may undergo further treatment including separation of the fibre and liquor before it is used or authorised to be discharged to the water environment.

4. Environmental risks

Non-waste AD can cause environmental harm if it is not properly designed, operated and maintained. The main risks include:

- odour;
- emissions to air;
- methane loss;
- emissions to water;
- soil and groundwater contamination;
- releases from tanks, lagoons, pipework and transfer systems;
- digestate or feedstock spills;
- fire and explosion;
- failure of containment or drainage systems; and
- failure of monitoring, maintenance or management systems.

Applicants should identify the relevant risks for their activity and explain the measures that will be used to prevent or, where that is not practicable, minimise environmental harm.

5. Outputs and associated activities

A non-waste AD activity produces several outputs, including digestate, biogas and process effluent. These outputs may be handled, stored, treated, used, recovered or discharged as part of the activity.

Applicants should describe all proposed output handling, treatment, use and discharge arrangements in their application. This should include, where relevant:

- digestate storage, separation, treatment and use;
- biogas collection, storage, treatment, upgrading, use and flaring;
- combustion plant or other energy generation plant;
- carbon dioxide recovery;
- effluent collection, recirculation, treatment and discharge; and
- any other activity or infrastructure associated with the AD process.

SEPA will use this information to determine the scope of the authorisation. Depending on the nature, scale and environmental risk, SEPA will determine whether activities are included within the non-waste AD permit, or require additional activities named within the authorisation.

5.1 Digestate

Digestate is the residue produced by the AD process. Where appropriately managed, it may be suitable for use as a fertiliser or soil conditioner. Applicants should describe how digestate will be:

- stored;
- contained;
- handled;
- treated or separated;
- transported from the site;
- used, recovered or discharged; and
- monitored or assessed to confirm it is suitable for its intended use.

Where further treatment is proposed, the applicant should describe:

- the purpose of the treatment;
- the treatment process and infrastructure;
- the outputs produced;
- how emissions and environmental risks will be controlled; and
- the proposed destination or use of each output.

Digestate management must prevent or minimise odour, releases to land or water, and loss of containment.

5.2 Biogas, energy and flaring

Biogas may be used on site, for example in a combined heat and power unit, or treated further for gas grid injection or use as vehicle fuel. Applicants should describe how biogas will be:

- collected;
- stored;
- treated or upgraded;
- used;
- monitored;

- managed during abnormal operation; and
- flared where necessary.

Biogas management arrangements should:

- prevent uncontrolled releases
- minimise methane loss
- ensure gas handling infrastructure is appropriately designed, operated and maintained

Flaring should not be used as a routine management method. Where flaring is proposed, applicants should explain when and how it will be used, how emissions will be controlled, and how use will be monitored and minimised.

5.3 Carbon dioxide recovery

Carbon dioxide may be recovered during biogas upgrading or other gas treatment processes. Where carbon dioxide recovery is proposed, applicants should describe:

- the recovery process;
- the source and composition of the gas stream;
- any treatment, compression or storage arrangements;
- the intended use or destination of the recovered carbon dioxide;
- any residues or waste streams produced; and
- any emissions or environmental risks associated with the activity.

SEPA will determine whether this activity forms part of the AD authorisation or requires separate authorisation.

5.4 Effluent

Effluent may arise from the AD process, digestate treatment, condensate management, washdown, drainage or other associated site activities. Applicants should identify all effluent streams and describe how they will be:

- collected;
- contained;

- recirculated;
- treated;
- monitored;
- discharged; or
- otherwise managed.

Where effluent is treated before discharge, applicants should describe:

- the treatment process;
- the expected effluent quality;
- monitoring arrangements;
- discharge location;
- receiving environment; and
- how the discharge will be controlled.

Discharges to the water environment must be fully justified by applicants and appropriate conditions will be set in an authorisation to ensure they do not cause environmental harm. The applicant must also demonstrate they have minimised the concentration of substances discharged and the volume discharged.

Depending on the type and capacity of the treatment activity this may be a separate listed EASR activity on the authorisation, for example Schedule 20, Part 4, Chapter 5, paragraph 25.

5.5 Managing changes to outputs or associated activities

Authorised persons must ensure that output handling, treatment, use and discharge arrangements remain within the scope of the authorisation.

Where an operator proposes to introduce a new output treatment process, change the destination or use of an output, alter biogas management arrangements, or change effluent treatment or discharge arrangements, they should assess whether the change affects the scope of the authorisation.

Where the proposed change may affect emissions, environmental risk, the nature of the authorised activity, or the authorisation boundary, the operator should discuss the change with SEPA before making it.

6. Feedstock

The status of feedstock is central to determining whether an AD activity can be authorised as a non-waste activity under Schedule 26.

A non-waste AD activity may only accept feedstocks that are not waste. Where waste feedstocks are accepted, or where waste and non-waste feedstocks are mixed, the activity cannot be regulated as non-waste AD under Schedule 26.

Authorised persons are responsible for demonstrating that proposed feedstocks are non-waste. SEPA will consider feedstock status when assessing whether the activity falls within the activity description and determining the scope of the authorisation.

Authorised persons should not assume that a material is non-waste simply because it is biodegradable, has economic value, or may have a beneficial use in AD. The status of a material will depend on the circumstances of its production, composition, handling, storage and use.

Where there is uncertainty about whether a proposed feedstock is waste or non-waste, Authorised persons should discuss this with SEPA before accepting the material.

6.1 Non-waste feedstocks

For the purposes of this guidance, non-waste feedstocks are biodegradable materials that have not become waste and are suitable for use in an authorised non-waste AD activity.

Examples may include:

- purpose-grown crops;
- certain crop residues; and
- industrial or agricultural residues that are by-products.

The authorisation will specify the feedstocks that may be accepted.

6.1.1 Scotch whisky production residues

SEPA has assessed distillery residues under Article 5 of the Waste Framework Directive and concluded that draff, pot ale, pot ale syrup and spent wash from Scotch whisky production can be treated as by-products rather than waste when used directly as feedstock in anaerobic digestion. This status applies only if the materials remain uncontaminated, have a guaranteed use under contract, undergo only normal handling steps, and are processed at authorised AD facilities that produce digestate meeting PAS110-equivalent standards. When these conditions are met, AD operations using these feedstocks, either exclusively or in combination with other non-waste feedstocks may be permitted as non-waste activities under Schedule 26 (69) of EASR.

6.1.2 Crop residues

Certain crop residues may be acceptable as feedstock in a non-waste AD activity. This may include:

- misshapen, bruised or undersized fruit and vegetables separated on the farm or in a pack-house as unsuitable for sale as food; and
- parts of fruit and vegetables, such as leaves, roots or toppings, removed as part of preparation for sale.

It does not include materials that have been discarded as waste such as crops, fruit or vegetables rejected because they are spoiled, contaminated, affected by pests or plant disease, or have otherwise deteriorated before use.

Food processing residues, source-segregated food waste from retail, catering or households, and other discarded biodegradable materials must not be accepted at a non-waste AD plant unless the operator can demonstrate, and SEPA agrees, that the material is not waste.

6.1.3 Other production residues

Other production residues may be capable of being treated as by-products, but this must be demonstrated by the operator. Authorised persons should consider the relevant legal requirements for by-products where the status of the material is uncertain.

Materials are more likely to be waste where they have been discarded, contaminated, or require treatment before they can be used. Such materials must not be accepted at a non-waste AD plant unless the operator can demonstrate, and SEPA agrees, that they are not waste.

6.2 Waste feedstocks and mixing

Waste feedstocks must not be accepted at a non-waste AD activity.

Typical waste inputs to an AD plant could include manure and slurry, vegetable waste, domestic and commercial food waste, green waste, waste animal feed, dairy washings, silage waste and silage effluent.

If waste feedstocks are accepted, or if waste and non-waste feedstocks are combined, the activity will be regulated as waste AD, regardless of the type, quantity or proportion of waste feedstock used.

Authorised persons must ensure that the feedstocks accepted and used at the site remain within the scope of the authorisation.

7. Appropriate measures and best available techniques

The general aims of EASR include preventing environmental harm or, where that is not practicable, minimising environmental harm from regulated activities.

For Schedule 26 activities, SEPA may have regard to applicable Scottish, UK or EU guidance on best available techniques when carrying out relevant functions.

For non-waste AD activities over 100 tonnes per day, SEPA will have regard to relevant Waste Treatment BAT Conclusions when assessing the design, operation and management of the activity.

Annex 1 identifies the BAT Conclusions relevant to this activity.

7.1 Relationship between appropriate measures and BAT

Best available techniques are not limited to plant or equipment. They may include the way an activity is designed, built, operated, maintained, monitored and managed.

Although “appropriate measures” and “best available techniques” are not identical terms, they are closely linked in practice. For non-waste AD activities over 100 tonnes per day, SEPA will use relevant BAT Conclusions as a key reference point when determining whether appropriate measures have been applied accordance with Regulation 9. Authorised persons should therefore expect to demonstrate compliance with the relevant WT BATC as part of the permitting and regulatory assessment.

7.2 Alternative approaches

Where an applicant proposes an alternative to a relevant BAT Conclusion, the applicant should explain:

- which BAT Conclusion the alternative relates to;
- why the alternative approach is proposed;
- how the alternative will prevent or reduce emissions;
- how it will achieve an equivalent level of environmental protection;
- how its performance will be monitored and maintained; and
- whether it introduces any additional environmental risks.

SEPA will consider alternative approaches on a case-by-case basis, taking account of the site-specific circumstances, emissions, receptors and environmental risk.

7.3 BAT-associated emission levels and emission limit values

Where BAT-associated emission levels are relevant to a non-waste AD activity, SEPA may use them to inform the emission limit values included in an authorisation.

Emission limits will be set on a site-specific basis, taking account of:

- BAT-associated emission levels
- the nature of the emission
- the receiving environment
- environmental risk
- achievable performance of control techniques

Where a BAT-associated emission level is expressed as a range, applicants should not assume that an emission limit will be set at the upper end of that range. The appropriate limit will depend on the site-specific assessment.

7.4 Ongoing review

Authorised persons must keep measures used to prevent or minimise environmental harm under review.

This includes reviewing infrastructure, management systems, monitoring data, incidents, complaints and operational changes.

Where changes may affect environmental performance or compliance, Authorised persons should assess whether updates to procedures, infrastructure or the authorisation are required.

7.5 What this means for Authorised persons

In practical terms, Authorised persons of non-waste AD activities exceeding 100 tonnes per day should:

- Refer to Annex 1 to identify those WT BATCs that apply to the >100t/day non-waste AD.
- Explain how the design, infrastructure, management and operation of the installation comply with those BATC.
- Justify any departures from relevant BATC.
- Demonstrate that any alternative techniques achieve an equivalent or better environmental outcome; and
- Provide sufficient evidence to allow SEPA to assess whether appropriate measures have been implemented under Regulation 9.
- Consider whether any associated activities are listed EASR activities in their own right that will be named on the authorisation eg certain treatment of waste waters/effluent or combustion.

The WT BATC are therefore not simply background information. For non-waste AD activities over 100 tonnes per day, they are the main benchmark SEPA will use when assessing what appropriate measures are required.

8 Appropriate measures for design and operation

8.1 EMS (Waste Treatment BATCs BAT 1)

Authorised persons must implement and maintain an Environmental Management System (EMS) appropriate to the scale and complexity of the facility, demonstrating senior management commitment and a clear environmental policy focused on continuous improvement. The EMS should establish objectives, targets and procedures, including defined roles and responsibilities, staff competence and training, communication, documentation, operational control, maintenance, emergency preparedness, and compliance with environmental legislation.

The EMS should include monitoring and measurement of performance, corrective and preventive actions record keeping, and periodic internal or external audit, alongside regular review by senior management to ensure effectiveness. It should also consider the use of cleaner technologies, lifecycle impacts including decommissioning, sector benchmarking, and include supporting plans such as waste (or materials) management, emissions inventories, residues management, accident management, odour control, and noise and vibration management

8.2 Feedstock acceptance

Compliance with the requirements of BAT 2 of the waste treatment BATC's is expected for the management of all inputs to the process as well as output management. Where the word 'waste' is stated in BAT 2 replace it with 'feedstock'.

Authorised persons must have systems in place to:

- identify each proposed feedstock before acceptance;
- confirm the source, producer and nature of the material;

- assess whether the material is non-waste;
- maintain contracts or written agreements confirming the intended use of the material;
- confirm that the material is uncontaminated and has not been mixed with waste;
- prevent unauthorised or waste feedstocks being accepted;
- inspect incoming loads where appropriate and confirm against pre-acceptance information;
- Identify and reject non-conforming feedstocks and manage them in line with a clear procedure;
- keep records of feedstock deliveries, quantities, sources and rejections; and
- notify SEPA where there is uncertainty about the status of a proposed feedstock.

Where an Authorised Person wishes to introduce a new feedstock, or materially change the source, nature, handling or storage of an existing feedstock, assess whether the change affects the non-waste status of the material and whether a variation to the authorisation is required.

Authorised Persons must be able to demonstrate that all feedstocks accepted at the installation are authorised and non-waste. This should be supported by clear procedures, records and contractual controls. SEPA may require evidence to demonstrate that proposed feedstocks are non-waste. This may include:

- a description of the feedstock and how it is produced;
- details of the producer or supplier;
- confirmation of whether the material is a product, by-product, rejected material or discarded material;
- evidence that the material has a certain use in AD;
- contracts or supply agreements;
- details of any handling, storage or preparation before use;
- evidence that the material is uncontaminated;
- evidence that the material can be used lawfully and safely;
- information on digestate quality and intended digestate use; and
- feedstock acceptance and rejection procedures.

Where sufficient evidence is not provided, SEPA may be unable to accept the material as non-waste. In such cases, the material may need to be treated as waste, and the activity may require regulation as a waste AD activity.

8.2.1 pre-acceptance feedstock procedures for AD

Systems for pre-acceptance should be in place to prevent acceptance of unsuitable feedstocks which may lead to uncontrolled emissions or result in poor digestate quality.

Have a written input specification with the types and quality of material that can be delivered for treatment. Include a list of the target input materials, prohibited materials and maximum acceptable criteria for any physical contamination.

Have contracts in place with regular suppliers which specify clear criteria for input contamination. These should be set depending on the input source and any pre-treatment equipment or procedures available on site.

8.2.2 Feedstock acceptance procedures for AD

Visually check incoming feedstock on arrival and verify them against pre-acceptance information. This may require a reception area separate from the main storage area. Loads of consistent feedstock from regular suppliers do not need to be checked at reception but must be checked before treatment.

Identify non-conforming feedstocks and manage them in line with a clear procedure. This could include separate storage in a designated quarantine area or enhanced pre-processing to bring the inputs into conformance (i.e. in line with acceptance criteria), or rejection of part of the load or the whole load. Record non-conformances and provide feedback to suppliers if agreed acceptance criteria are not being met.

8.3 Feedstock and digestate storage and handling

To reduce the environmental risk associated with feedstock and digestate storage and handling, use a combination of the following techniques.

8.3.1 General

Locate storage areas away from watercourses (eg. 10m at least from water environment)and sensitive perimeters, for example those close to housing(eg. 400m at least from residential properties). If storage options are limited, then consider taking extra precautions to limit any impact on the receptors. Store within a secure area of the facility to prevent unauthorised access and vandalism.

8.3.2 Capacity

Document the maximum storage capacity of the facility and its designated storage areas. Monitor the quantity of stored feedstock and digestate against the allowed maximum capacities, and do not exceed them. Take account of factors like loading rate and capacity for treatment, seasonal changes in inputs and in markets for outputs such as landbank availability and the impact this will have on the stored feedstock and digestate and compliance with EASR GBR 18 and 34 for offsite storage. You must prearrange a contingency so you have adequate storage. Ciria 759 (revisions due to be published in October 2026)

8.3.3 Duration

Treat feedstocks or remove them from the site as soon as possible. Treat the oldest feedstock first, unless it is necessary to prioritise more recently received feedstocks because they pose a higher risk of environmental harm, such as odorous materials.

Minimise the time feedstock is stored in reception areas before treatment. Those that are liable to decay quickly should be processed within 72 hours. Treat feedstock within 24 hours if there is an increased risk of:

- Attracting vermin.
- Causing fugitive emissions such as odour.

8.3.4 Site Surfaces and Drainage

Unless specifically authorised by the permit or registration, store feedstocks and digestate on an impermeable surface with sealed drainage.

Use a chartered civil or structural engineer to provide construction quality assurance and validate the construction of all facilities.

Storage areas should

- Contain contaminated run off.
- Be designed to allow access for inspection and cleaning.

Impermeable surfaces must have sealed construction joints and be designed to prevent spillage escaping off site.

Storage area surfaces used for odorous or ammonia-rich materials should be of a type and quality suitable for effective cleaning and or disinfection.

Where possible, keep clean rainwater separate from feedstock and waste waters to limit storage and treatment requirements.

Drainage should be accessible to allow cleaning and maintenance. Inspect drainage channels, aeration channels and collection sumps to identify blockages. Remove debris and clean the channels and sumps to prevent odour, pest infestations and maximise drainage.

Have a documented inspection and maintenance programme for impermeable surfaces and containment facilities.

8.3.5 Bunkers and bays

Minimum conditions are set out in General Bind Rules 31 The making and storage of silage not in bales or bulk bags | Beta | SEPA | Scottish Environment Protection Agency

Design bunkers, bays and pits so that feedstock and debris does not build-up in inaccessible areas such as corners. Regularly clean bunkers, bays and pits.

8.3.6 Above Ground Tanks and 'Bulk' Storage

Locate above ground tanks on an impermeable surface with secondary containment. For new sites infrastructure must be designed, installed and maintained in line with the latest version of CIRIA 736 Containment systems for the prevention of pollution.

If existing sites do not have secondary containment meeting these standards, they must carry out an appropriate risk assessment in line with CIRIA 736. An improvement plan must then be developed and agreed with SEPA setting out the measures that will be taken to provide an equivalent level of protection to the water environment.

Secondary containment (bunds) must:

- Be impermeable, stable and resistant to the stored materials.
- The greater of 110% of the capacity of the largest container the bund is protecting or, in cases of two or more containers, 25% of the combined volume of all the tanks the bund is protecting.
- Have pipework routed within bunded areas with no penetration of contained surfaces.
- Be designed to catch leaks from tanks or fittings.
- Have regular visual inspections – any contents must be pumped out or otherwise removed under manual control after checking for contamination.
- Be fitted with a high-level alarm (where appropriate) if not frequently inspected.
- Have tanker connection points within the bund (where possible), and if not possible provide adequate containment for spillages or leakage.
- Have programmed engineering inspections (extending to water testing if structural integrity is in doubt).
- Be emptied of rainwater regularly to maintain the containment capacity.

It should be possible to close all connections to vessels, tanks and secondary containment using suitable valves. Fit a valve close to the tank where there are bottom outlets and have at least two isolation points in case of valve failure.

Direct overflow pipes to another vessel, holding area or an appropriate treatment system.

Cover bulk storage tanks. Where there is a risk of offensive odour emissions, vent tanks and vessels through suitable abatement, or direct emissions to a gas recovery system.

8.3.7 Submerged or Underground Tanks

For subsurface structures:

- Construct in accordance with CIRIA 736 or an alternative recognised standard.
- Establish and record the routing of all site drains and subsurface pipework.
- Identify all subsurface sumps and storage vessels.
- Engineer systems to minimise leakages from pipes and make sure they can be detected quickly if they do occur.
- Provide secondary containment or leakage detection for subsurface pipework, sumps and storage vessels.
- Establish an inspection and maintenance programme for all subsurface structures, for example, pressure tests, leak tests, material thickness checks or CCTV.

8.3.8 Lagoons

Where lagoons are already used on existing sites, they should be lined with an impermeable sheet material designed to prevent leakage, emissions, rainwater ingress and maintain a freeboard of at least 750mm. They must be risk-assessed by a suitably qualified engineer. You must maintain the structural integrity of the lagoon and address and resolve any problems identified during the assessment.

Existing lagoons can use floating covers or a crust (formed where there is a high dry matter content) to manage emissions. Coverage must be sufficient to minimise the surface to air ratio to prevent emissions.

New lagoons will not be permitted

8.3.9 Containers, IBCs and Drums

Where practicable, store containerised materials under cover. Under cover storage provides better protection for containers than open air storage and minimises the generation of contaminated water. Covered storage also:

- Lowers temperature fluctuations that can cause a pressure build-up in containers.
- Reduces the degradation of containers through weathering.

Provide appropriate secondary containment for all drums and other containers which:

- Are greater than 200 litres in capacity and are kept outside.
- Contain liquids (waste or otherwise) that could be harmful to the environment if spilled.

All containers should be fit for purpose, that is:

- In sound condition.
- Not corroded, if metal.
- Have well-fitting lids.
- Suitable for the contents.
- With caps, valves and bungs in place and secure
- Within the manufacturers use-by date, particularly for plastic containers.

Containers should remain labelled during storage in the way it was labelled at acceptance. Handle and store containers so that the label is readily visible and continues to be legible.

Store all containers in a way that allows easy inspection. Check any containers (and pallets they may be stored on) regularly. Non-compliant containers and pallets should be made safe. Immediately manage any unsound, poorly labelled or unlabelled containers (for example, by re-labelling, over-drumming and transferring the container's contents).

Do not use containers, tanks and vessels beyond their specified design life. Only use them for the purpose, or substances, they were designed for.

8.4 AD process

Anaerobic Digestion must have a clear and defined benefit. Digestate should meet expectations and be suitable for its intended recovery route.

Have up-to-date details of the treatment activities set out in the written environmental management system. Include information about the characteristics of the feedstock to be treated and the treatment processes, including:

- Simplified process flow sheets that show the origin of any emissions.
- Diagrams of the main plant items where they have environmental relevance, for example, storage, tanks, treatment and abatement plant design.
- Details of the treatment stages.
- The processing capacity of the treatment equipment or process.
- The control system philosophy and how it incorporates environmental monitoring information.
- A summary of operating and maintenance procedures.

The extent of the information about the treatment activities will depend on the nature, scale and complexity of the facility and the range of environmental impacts it may have.

8.4.1 Pre-Processing

Pre-processing may include one or more of the following:

- Removing contaminants, for example screening, separation, sifting, or floatation.
- Optimising particle size, for example using shredding or maceration.
- Mixing and blending.

- Using additives, for example trace elements.
- Softening or breaking granular material

Remove all contaminants in the feedstock or reduce them to levels that are as low as reasonably practicable prior to digestion.

Where there is an identified risk of impacts on sensitive receptors carry out pre-treatment in a suitably designed building or tank with an air ventilation and extraction system connected to an air abatement system.

8.4.2 Digester stability

To reduce emissions to air and to improve the overall environmental performance, monitor manually or automatically to:

- make sure digesters are stable
- minimise operational difficulties
- provide sufficient early warning of system failures which may lead to containment failing and explosions

To demonstrate digester stability monitor and control the main feedstock and process parameters, including:

- pH and alkalinity of the digester feed
- temperature – continuously
- digester operating temperature
- hydraulic and organic loading rates of the digester feed
- concentration of volatile fatty acids (VFA) and ammonia within the digester and digestate
- biogas quantity, composition and pressure – continuously
- liquid and foam levels in the digester

Define the optimum operating temperature depending on the digester's biology and system design. Keep the digester within the optimal operating temperatures and document this in the management system.

Maintain a stable temperature in the digester preventing overheating and cooling. Consider insulating the digester.

Understand the process parameters and make changes in the feedstock and micro-nutrient dosing to:

- maintain the digester to optimum performance
- be able to demonstrate maximised efficiencies for volatile solids reduction or chemical oxygen demand (COD) reduction in the substrate

Install an alarm mechanism that is interlocked so that reactor feeding automatically stops when a gas pressure alarm condition occurs.

Use Supervisory Control and Data Acquisition Equipment (SCADA) to monitor, record and display data for continuously monitored parameters.

Carry out a daily visible inspection of the digesters using inspection ports.

Feeding systems installed inside buildings must have a hazardous gas warning system. Consider these areas as part of your HAZOP and DSEAR risk assessment.

8.4.3 Preventing foaming and over topping tanks

Take all measures to prevent and detect foaming by:

- actively managing the assessment and digester feeding rate
- monitoring the digestate stability
- fitting high level probes or sensors on tanks used for the treatment

If using foam suppressants, have procedures in place to support their deployment.

If using chemical additions, have appropriate controls and procedures in place for chemical storage, handling and use.

Avoid decanting sacks or drums of chemicals directly into treatment tanks or vessels. Monitor any reactions and make sure control mechanisms are in place to manage such reactions.

Equip vessels and tanks used for liquid-based feedstock treatment with continuous temperature and level monitoring capability.

Install pressure monitoring if there is a risk of pressurisation in the vessel.

Link all monitoring to an alarm system that can be monitored remotely. The alarm system must give an audible and remote alarm notification in the event of over or under-heating and over-filling.

Install mixing systems to all liquid-based treatment vessels, these may include one (or a combination) of the following:

- mechanical stirrers using agitators
- hydraulic mixing using pumps that recirculate the substrate
- pneumatic mixing by recirculation (for example biogas in AD digesters)

Mixing or stirring mechanisms must be appropriate for the type of vessel used and the feedstock you are processing. This is to make sure there is:

- efficient mixing
- uniform heat transfer
- sedimentation prevention

Understand the mixing efficiency and sediment loading in the vessels. Sediment must not impede mixing, which may lead to pressurisation or plant failure. Demonstrate this by, for example:

- monitoring the agitation ampage of your mixing system

- using lithium tracing
- heat conduction thermal imaging

Tank design must:

- allow for sludge draw-off, debris and grit removal
- account for routine and expected pressure variations

Install pressure monitoring if there is a risk of over or under pressurisation in the vessel.

8.5 Biogas Production & Management

Manage gas production volumes within the processing constraints of the facility.

Have contingency measures in place and appropriately manage any excess gas produced, including when there is limited gas to grid availability during low demand periods.

Use measures such as decreasing loading rate and diverting feedstock if gas demand is compromised.

When determining gas storage capacity, consider how changes in climatic conditions, such as high temperatures in the summer, affect the volume of gas for storage.

Protect your biogas upgrading and energy recovery plant with flame arrestors and slam shut valves.

Install a permanent back-up generator to power critical plant and equipment in the event of power failure. Critical plant and equipment would include, for example:

- lighting
- maintain the integrity of gas storage systems
- flares for preventing plant failure and to manage health and safety risks

8.5.1 Leak detection and repair (LDAR)

Implement a leak detection and repair plan that quickly identifies leaks and controls methane slippage from all processes and storage on site. Any identified leaks must be prioritised and repaired within reasonable timescales with rechecking to verify repair.

The LDAR plan must include:

- a map of the site and an inventory that identifies locations (point and area sources) for potential emissions
- a method for locating unknown emission sources
- estimates of the type and volume of release from each leak location
- prioritised locations (from highest risk to lowest risk) based on the potential quantity of release, its environmental impact, and DSEAR
- your monitoring methods and frequency to quantify significant emissions
- mitigation measures

Consider all potential sources of leakage within an LDAR plan, for example

- roof and cover fixings
- pressure relief valves and vents
- feeding and digestate separation units
- gas pipes
- combined heat and power plant (methane slippage)
- gas upgrading plant
- grid injection
- digestate storage
- pits and sumps, for example condensate pits

The LDAR plan should contain the following survey details

- Details of the site where the LDAR survey was carried out, conditions at the time of the survey, and measurement objectives
- Details of the organisation and personnel carrying out the LDAR survey
- Details of the detection equipment used for the survey

- Details of the survey carried out
- Details of result monitoring
- A repair schedule which includes a proposed timescale for repairing the identified leaks, with justification (based on the severity of the leak or potential risk).

Procedures must make sure propane and odorants (for example mercaptans) are handled safely.

8.5.2 Pressure and vacuum relief control

Install pressure relief and vacuum relief valves (PVRVs) on all tanks where there is a risk of over or under pressurisation.

An appropriate qualified engineer must design the PVRVs and gas pipework fitted to your biogas storage vessels.

Demonstrate that PVRVs are able to and can cope with the anticipated maximum gas production volumes and pressures to operate within the design of the plant.

For all tanks, pipes and vessels where PRVs are fitted the plant manufacturer must provide design pressures.

Only use PVRVs designed, tested and manufactured in line with recognised standards such as BS EN ISO 28300:2008 or API2000.

Design and monitor gas production rates and organic loading so the excess pressure in the tank does not exceed the ISO28300 or AP12000 certified leak test rate of the PVRV.

Pressure relief valves and gas pipe work must be able to cope with the anticipated maximum gas production volumes and pressures. Under the highest gas flow scenario, back pressure on tanks containing biogas must be less than the maximum allowable operating pressure and more than the minimum operating vacuum.

When determining pressure set points consider:

- that maximum operating pressure must be no higher than the certified leak test pressure

- the pipework dimensions

Incorporate gas production rates in the calculated maximum flow rates for the following conditions:

- changes in temperature
- changes in atmospheric conditions
- safety requirements.

Valves must be set so that they do not produce fugitive emissions during normal tank pressure fluctuations.

Fit pressure sensors to your digestion tanks and gas storage vessels. Maintain safe operating pressure by managing gas production and directing biogas to:

- gas storage
- treatment
- utilisation plant
- flare

Specify a maximum pressure for each digester above which there is no further feed to the digesters.

If excess gas pressure builds up in the tanks this must trigger an alarm which immediately instigates the venting systems.

Locate pressure relief and vacuum devices independently from gas off-take lines and install stand-by valves to allow for down time during maintenance.

Inspect, maintain and calibrate PRVs regularly and after foaming or over topping events. Inspect and protect PVRVs against environmental and climatic conditions, for example by providing frost protection and barriers to prevent damage.

Incorporate isolating valves so you can remove PVRVs from a live system for maintenance without producing large fugitive emissions or compromising site safety.

Locate isolation valves before a fully bolted spool under PVRVs so they can be removed without affecting security of the isolating valve.

Record the gas pressure.

Data logging on SCADA must be in place to record release events within operational pressure ranges. Record the date, time and duration of the release. Do not make modifications to the PVRV without manufacturer's approval.

Record gas pressure events that are out of the expected operating range, including the date, time and duration of the pressure relief events.

8.5.3 PRVs inspection and calibration

Correctly calculate the safety set point of PRVs. Review these when there are changes to the operating process and make any required adjustments

A competent person must correctly set and fit each PVRV.

All PVRVs must be correctly maintained and inspected, following manufacturers' recommendations. Have an agreed, written scheme of examination in place for their inspection and maintenance.

The PRV manufacturer must provide the certified capacity flow curve of the PRV and demonstrate that the test was completed according to BS EN ISO28300 or API2000 on approved test apparatus.

Each PVRV must have a current functional test certificate based on BS EN ISO28300 or API2000 procedures for production testing. This certificate will include details of the retained pressure at specified flow rates. This figure must exceed 75% of the set point using calibrated and independent measurement technology.

The test certificate is valid for 3 years from the date of production or the previous test. Get an earlier revalidation and certification if the following is evident or has occurred:

- maintenance inspections indicate that the contamination build up is excessive
- corrosion
- a foaming incident
- tank overfill

8.6 Biogas treatment and storage

Prevent the emission of uncontrolled release of biogas and biomethane.

Inspect, maintain, routinely test and keep a record of all gas storage and treatment plant and equipment following the manufacturers' recommendations or your inspection regime.

Identify the intended end use of the biogas to determine the appropriate treatment method. You must consider the following factors:

- dewatering
- removing hydrogen sulphide which may corrode gas engines
- removing oxygen and nitrogen
- removing ammonia
- removing siloxanes
- removing particulates
- removing carbon dioxide particularly when upgrading from biogas to biomethane
- adding propane to improve calorific value for biomethane gas grid injection

Assess hydrogen sulphide levels in the biogas to determine the efficiency of the removal methods applied.

Continuously monitor biogas flow, quality, pressure and composition. Monitoring systems must be interlocked where possible and have remote alarm capability.

Remove water (condensate) from the biogas to protect the collection system, energy recovery plant and auxiliary flare. Condensate must be discharged into a contained drainage system or recirculated back into a digester. Condensate storage must not produce odorous emissions.

Collect biogas from all digesters and all other treatment and storage vessels where methane is actively generated.

Biogas storage facilities must be gas tight, pressure-resistant, weatherproof, and resistant to ultraviolet light and fluctuations in temperature.

Do not allow biogas and air to mix unless it is used for desulphurisation. If you use oxygen to desulphurise biogas you must automatically monitor oxygen levels. Use high-level alarms which are set to automatically stop adding air before the lower explosive limit is reached.

If using carbon filters, for example to clean gas before combustion, have procedures that minimise the risk of exothermic reactions during their maintenance, for example, by purging with nitrogen. Contain and treat purged gases.

8.7 Combustion units

Inspect and maintain all gas utilisation plant and equipment, as a minimum, following manufacturers' recommendations. Record all routine and non-routine inspection and maintenance.

Gas combustion stacks must be vertical and unimpeded by cowls or caps.

Stacks for releasing point source emissions must have an 'effective stack height' unless otherwise stated in the permit.

Monitor emissions following the requirements in the permit.

Consider whether you can use the heat from processing or combustion.

Depending on the type and capacity of the treatment activity this may be a separate listed EASR activity on the authorisation, for example Schedule 27 Combustion of fuels | Beta | SEPA | Scottish Environment Protection Agency

Commented [ET1]: Should this be "min 3 m?" @Lang, Jacqui

Commented [ET2R1]: Jacqui as discussed can you check this, sorry ideally today as I need to send to GPE tomorrow. Happy to discuss

Commented [LJ3R1]: as discussed previously i'd rather see "effective" than 3m at this stage

Commented [ET4]: Need to run by Jacqui

Commented [LJ5R4]: my understanding is anything <1MW would be in AD permit but >1MW would fall into sch 27 and be a separate activity?

Commented [ET6R4]: Yes that is my understanding so nothing changes

8.8 Flares or surplus gas burners

Install or have a gas flare available for use at all times. Do not routinely use flares or vent directly to the atmosphere. Use flaring only for safety reasons or for non-routine operating conditions (e.g. start-ups, shutdowns)

Use enclosed (ground) design flares on all new plants. They should be capable of achieving a minimum of 1,000°C with 0.3 seconds retention time at this temperature.

Ensure that the finish on the exterior of the flare is weatherproof as well as heat-resistant. The structure of the flare must be designed to withstand wind stresses.

Protect ancillary items such as control and instrumentation equipment, including cabling. Providing housing makes maintenance tasks easier but consider any explosion hazards.

Minimise the operation of the flare and use it only for emergencies and during maintenance to protect the integrity of the plant (for example, during start-ups or shutdowns).

Specify measures in your procedures to minimise flare use during routine maintenance. This includes, for example, to:

- reduce feed rates to lower gas production
- increase the safe storage of gas where capacity is available
- install stand-by gas utilisation plant

Monitor and record the use of your flare. Your records must include the date, duration and number of flaring events.

SCADA systems must be able to continuously monitor gas flow and when the flare is activated.

Quantify emissions if required and identify any potential improvements that would reduce flaring events.

Routinely measure other parameters, for example:

- composition of gas flow
- gas temperature
- ratio of assistance
- velocity
- purge gas flow rate

Routinely measure pollutant emissions, for example:

- oxides of nitrogen (NOx)
- carbon monoxide (CO)
- VOCs

Monitoring and interlocking must be linked to the SCADA system.

Flares must be automatically activated when the quantity of biogas exceeds a set maximum limit and before venting of biogas occurs.

During commissioning, consider lean burn flares where gas quality is poor to prevent venting and pollution.

8.8.1 Flare noise

Flares can cause noise. This can come from the vents, the combustion process and smoke suppressant injection. Design new flares to minimise noise emissions.

Noise avoidance can include the following measures:

- reducing or attenuating the high-frequency steam jet noise by using multi-port steam injectors – designing the orifice to cope with potential coke formation is essential
- installing the injectors in a way that allows the jet stream to interact and reduce the mixing noise

- increasing the efficiency of the suppressant with better and more responsive forms of control
- restricting the steam pressure to less than 0.7MPa gauge
- using a silencer around the steam injector as an acoustic shield for the injectors
- using enclosed ground flares

9 Emissions

Identify and record all sources of emissions in the environmental management systems (or working plan). This includes all emissions to air and water (including emissions to sewer).

For larger facilities at Permit level, SEPA may set emission limits and monitoring requirements in the authorisation, based on the emissions inventory and environmental risk assessment.

9.1 Point source emissions to water

BAT 3 of the Waste Treatment BATC's requires identification of point source emissions to water and sewer as part of an inventory of emissions. This is applicable to non-waste AD activities. Where substances are identified as relevant by the inventory, the associated water emissions monitoring set out in BAT 7 is also applicable.

BAT 20 then sets out the techniques that can be applied to reduce emissions to water along with the BAT-associated emission levels SEPA will refer to when setting emission limits in an authorisation.

Discharges to water or sewer must comply with the conditions of an environmental authorisation or trade effluent consent. Emissions limits and monitoring requirements may be set in the authorisation.

Provide sufficient information to SEPA to enable an assessment of the risk the discharge poses to the environment. Information demonstrating that the concentration of substances in the discharge and the volume discharged have been minimised will also be required.

Sources of wastewater include:

- Process water.
- Condensate collected from a treatment process.
- Vehicle washing.
- Washing containers, tanks and vessels.
- Loading and unloading areas.

Direct wash waters from cleaning vessels to foul sewer or a contained drainage system for disposal or re-circulation.

Spills and leaks from the process i.e. feedstock storage areas, fuel, additives etc should be contained at source and not routed to the wastewater system unless it can be treated sufficiently to comply with the conditions of the authorisation. Treat spills and leaks as an incident.

Use all the following techniques:

- Optimise the feedstock moisture level to minimise generating effluent.
- Segregate run-off from operational areas and other site drainage (roofs etc) where possible.
- Re-circulate process water streams, where beneficial to the AD process.

If wastewater/effluent is treated before discharge or disposal, use a combination of these techniques:

- Preliminary or primary treatment – e.g. equalisation, neutralisation or physical separation.
- Physico-chemical treatment – e.g. adsorption, distillation or rectification, precipitation, chemical oxidation or reduction, evaporation, ion exchange, or stripping.
- Biological treatment – e.g. reed beds, denitrification.
- Solids removal – e.g. coagulation and flocculation, centrifugal decanting, sedimentation, filtration or flotation.

For relevant emissions to water or sewer identified by the emissions inventory, monitor key process parameters (for example, wastewater flow, pH, temperature, conductivity, or BOD) at key locations (Ref. BAT 6). For example, these could either be at the:

- Inlet or outlet (or both) of the pre-treatment.
- Inlet to the final treatment.
- Point where the emission leaves the facility boundary.

9.2 Setting emission limit values (ELV's) for discharges to a receiving waterbody.

BAT 20 (table 6.1) of the Waste Treatment BATC's sets out the emission level range for direct discharges to a receiving waterbody for the following parameters: total suspended solids (TSS), chemical oxygen demand (COD), total organic carbon (TOC), total nitrogen (TN), and total phosphorus (TP). SEPA will set an appropriate site-specific ELV within that range taking account of the principle of process optimisation by ensuring that all appropriate measures are taken to minimise the concentration of substances, and the volume discharged, to the environment.

For direct discharges to the water environment from non-waste AD plants and any associated treatment activities, except those made to the marine environment where appropriate dilution requirements are met, SEPA intend setting an ELV within the ranges for the parameters in BAT 20. We would also consider setting limits for any additional parameters, including different forms of the BAT 20 parameters, which may be capable of causing environmental harm in the water environment.

Placement on the BAT 20 emission level range will depend on site specific circumstances such as the treatment techniques used, process optimisation, and the sensitivity of the receiving waterbody. All parameters including additional parameters and those from BAT 20 will also be considered using existing processes for determining an application for a schedule 10 EASR activity to discharge effluent to the water environment. If SEPA's assessment indicates a lower limit than the BAT 20 range is required to sufficiently protect the water environment, tighter limits will be set.

For discharges to the marine environment (where appropriate dilution requirements are met), SEPA propose not to automatically set emission limits based on BAT 20. Instead, we will set emission limits using existing processes for determining an application for a schedule 10 EASR activity to discharge effluent to the marine environment. Using these processes, we would still consider setting limits for the BAT 20 parameters (just not using the BAT 20 ranges), along with any additional parameters which may be capable of causing harm in the marine environment i.e.

metals, ammonia etc. In setting these emission limits SEPA will also have regard to the principles of BAT and process optimisation.

Taking this approach for discharges to the marine environment recognises the significant differences in the receiving environment when compared to discharges to inland waters. It will allow us to consider each discharge and its composition in the context of their receiving environment and set appropriate limits to prevent environmental harm.

Where SEPA deviate from setting emission limits based on BAT 20, we may require additional environmental monitoring to that set out in BAT 7. For example, seabed surveys around long sea outfalls or impact assessments in sensitive environments. The purpose of this will be to provide ongoing confirmation there is no environmental harm being caused by the discharge.

Authorised persons of all non-waste AD activities must be able to provide a robust justification with their permit application that their effluent treatment techniques comply with regulation 9 of EASR. This justification must be informed by any applicable Scottish, UK or EU guidance on the best available techniques for effluent treatment, including those set out in the WT BATC's.

9.10 Fugitive emissions to water and land

Fugitive emissions are generally controlled by installing correct site infrastructure (impermeable surfaces, drainage systems, tank bunding) and managing surface water runoff.

In addition, implement a spillage response plan and ensure spillages are dealt with immediately.

Stop spillages from entering drains, channels, gullies, watercourses and unmade ground. Make available proprietary sorbent materials, sand, booms or drain mats for use when required.

Keep spill kits at locations close to areas where a spillage could occur and make sure relevant staff know how to use them. Make sure kits are replenished after use.

9.11 Odour

Where there is a risk of offensive odour at sensitive receptors, or where odour events at sensitive receptors have been substantiated, implement and regularly review an odour management plan. The plan should incorporate all the elements described in SEPA's odour guidance.

9.12 Point source emissions to air

Where emissions are collected and channelled through air extraction systems, use one or more of the abatement techniques to reduce emissions:

- Bio filtration, bio trickling or bio scrubbing.
- Scrubbing (for example wet or chemical).
- Adsorption, for example activated carbon.
- Thermal oxidation.
- Fabric filter – for mechanical biological treatment to remove dust.

Carry out an options appraisal to determine the most appropriate abatement techniques using the following information:

- A characterisation of the pollutants in the emission to be abated (including an appropriate level of speciation, concentration, temperature, pressure, wet or dry etc.).
- The flowrate of the emission stream and its variability over time.
- The frequency of the emission and its variability.
- The reduction required so offensive odours are not detectable beyond the boundary.
- Cost, space, reliability, maintenance, and spare part availability.

Ensure the abatement system is effective in treating odour and monitor and maintain abatement to achieve optimum conditions at all times. Depending on the level of reduction required the use of more than one technique may be required.

9.12.1 Emission Limits to air

SEPA will set emission limits in your permit considering:

- the emissions inventory
- the relevant monitoring requirements set out in BAT 8 of Waste Treatment BAT Conclusions
- the associated emission limits (AELs) set out in BAT 34, table 6.7 of the Waste Treatment BAT Conclusions

Emission limit values may need to be stricter depending on:

- the location of sensitive receptors (such as residential properties)
- the stated design of the abatement plant

For non-waste AD sites, emission limits from channelled emissions will likely be set for odour concentration within the range presented in BAT 34 for point source emissions from the process. The monitoring frequency is once every 6 months although this could be reduced where the emission levels are proven to be sufficiently stable.

10. Pest prevention and management

Manage feedstock in a way that prevents pests and vermin. Consider procedures for

- inspecting for pests and vermin and for controlling them
- rejecting loads of infested feedstock
- treating pest and vermin infestations promptly
- storing, handling and using approved pest and vermin control products

To prevent fly infestations and manage them if they arise, you should do the following:

- Implement measures to proactively decrease the incidence of flies on site.
- Have a process to monitor as well as count and record the number of flies on site at times when they are problematic.
- Have a process to investigate and resolve fly infestation.
- Reject maggot and fly infested waste.
- Have effective cleaning and housekeeping.
- Use fly treatment equipment and chemicals where approved and appropriate and you have assessed their use in your HACCP plan.
- Use all knockdown sprays, pesticides and larvicides according to the manufacturer's instructions.

11. Digestate Outputs

Material produced by the AD process must be suitable for the intended use, in terms of grade, stability and other quality parameters. The site should have operating procedures that define the process and the outputs, with regard to requirements of intended customers or markets.

11.1 Digestate separation

Separate digestate in a way that prevents or mitigates emissions.

If there is a risk of odour pollution treat it in a building with an appropriate air ventilation and extraction system. This must direct exhaust air to an abatement system or for recovery Design the extraction and abatement system so that:

- it provides a safe working environment
- air exchanges meet the recommended ventilation standards
- appropriate monitoring can be carried out in line with BAT 7 of the waste treatment BATC's

- the appropriate emission limits set out in BAT 34 of the WT BATC's are met

Minimise fugitive emissions from dewatered digestate fibre. This applies to all stored material. For example, store it:

- under a suitable cover
- in an enclosed building fitted with an air ventilation and extraction system
- in field stores in line with Water GBR 18

Separate and process digestate on an impermeable surface with a contained drainage system.

11.2 Composting digestate fibre

If composting digestate fibre carry this activity out in:

- an enclosed building fitted with a suitably designed ventilation, extraction and air abatement system
- the open, either with negative aeration connected to an appropriate air extraction system with abatement, or a suitable covered system

Control the risk of bioaerosols and demonstrate this by carrying out a site-specific risk assessment.

11.3 Drying digestate

Contain, collect, extract and treat all the emissions generated when drying digestate by applying heat.

All extraction and abatement systems must be appropriately engineered, sized and designed to a relevant industry standard to treat the emissions produced. These emissions may include:

- ammonia
- residual biogas
- odorous chemicals

- particulates and bioaerosols

12. Accident Prevention and Incident Response

The EMS should contain a plan for dealing with incidents or accidents that could result in pollution, including near misses. Your accident management plan must identify the hazards, risk and mitigation measures that will protect the environment in the event of an accident or event. Particular areas to consider may include:

- failure of plant and equipment, for example storage tanks and pipework, or blocked drains
- failure of containment, for example bund failure or drainage sumps overfilling
- failure to contain firefighting water
- failure of abatement systems
- vandalism and arson
- operator error
- accessibility of control equipment in emergency situations
- extreme weather conditions, for example flooding or very high winds

Consider and reduce the risk of emissions from accidents and incidents such as

- loss of containment – all polluting matter
- vents
- safety relief valves – making sure these are checked and maintained (preventing sticking and over feeding)
- bursting discs and seals

- tank wall penetrations
- storage containers

Your drainage and collection system must take account of additional firefighting water flows or firefighting foams. You may need emergency storage to prevent contaminated firefighting water reaching a receiving water body.

Keep a log of all accidents and incidents and any post-accident procedures that include doing an assessment of the harm an accident caused (or may have caused) and actions you will take to prevent further accidents.

13. Resource, Material, and Energy Management

Optimise plant performance by monitoring water, energy, raw materials, residues, and wastewater at least annually using meters, invoices, or calculations at the process or plant level.

Enhance material efficiency by substituting raw treatment chemicals with compatible waste streams such as using waste acids for pH adjustment or fly ash as binders provided the waste is strictly screened for impurities like heavy metals, POPs, salts, and pathogens. Where possible reuse packaging to reduce the quantity of waste sent for disposal.

Continuously manage energy efficiency by implementing both a formal energy efficiency plan and a detailed energy balance record.

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Annex 1

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Table 1: Waste Treatment BAT Conclusions (BATc's) applicable to Non-Waste AD

BAT Conclusion	Topic	Applicability	Section in the draft guidance
Overall environmental performance			
BAT 1	Implement and adhere to environmental management system (EMS)	Applicable - links to other BATc's	8.1
BAT 2	Techniques relating to waste receipt, segregation, etc.	Applicable – the term 'waste' here is directly interchangeable with 'non-waste' feedstock	8.2
BAT 3	Waste water and waste gas characterisation and inventory	Applicable – (i) relates to inputs to the process (swap term 'waste' for 'non-waste'). (ii)&(iii) relate to all water and air emissions from the process, including from effluent treatment plants	9
BAT 4	Waste received storage arrangements	Applicable – relates to feedstock received rather than 'waste'	8.3
BAT 5	Waste received handling and transfer arrangements	Applicable – relates to feedstock received rather than 'waste'	8.3
BAT 6	Monitoring of wastewater emissions - key parameters	Applicable – relates to water emissions identified by BAT3	9
BAT 7	Monitoring of direct emissions to water (i.e. wastewater) – frequency and standards	Applicable – Only for 'all waste treatment' and 'biological treatment' processes (i.e. chemical oxygen demand or total organic carbon, total nitrogen, total phosphorus & total suspended solids)	9

BAT 8	Monitoring of channelled emissions to air – frequency and standards	Applicable – Only for 'biological treatment' processes (i.e. hydrogen sulphide, ammonia, odour concentration)	9.12
BAT 9		Not applicable to non-waste AD	n/a
BAT 10	Monitoring odour emissions	Applicable	9.11
BAT 11	Resource utilisation monitoring	Applicable	13
Emissions to Air			
BAT 12 BAT 13	Odour Management Plan (OMP) Odour emissions prevention/reduction/controls	Applicable – all non-waste AD sites will require to set up and implement an OMP The specific measures listed are not applicable to non-waste AD however you must still demonstrate the overarching aim of preventing odour emissions	9.11
BAT 14	Diffuse emissions to air prevention/reduction/control	Applicable – This relates to fugitive, non-channelled emissions. Any technique referencing 'waste' handling will also be applicable to handling non-waste feedstock.	9
BAT 15	Flaring controls and minimisation	Applicable	8.8
BAT 16	Reducing emissions from flaring	Applicable	8.8
Noise and Vibration			
BAT 17	Noise and Vibration Management Plan (NVMP)	Applicable	8.8 (flare noise)
BAT 18	Noise emissions prevention/reduction/control	Applicable	8.8
Emissions to Water			
BAT 19	Optimise water use, reduce wastewater and prevent/reduce emissions to soil and water	Applicable – BAT 19 c&d (impermeable surfaces and secondary containment measures) are particularly relevant.	8.3 9.10
BAT 20	Treat wastewater to reduce emissions. This includes a table setting out the emission limits you must achieve.	Applicable for all direct discharges except those made to the marine environment where a different approach is being proposed (see above). In table 6.1 only	9.1, 9.2

		the BAT-AEL's applicable to 'all waste treatments' and 'biological treatment' are relevant (COD or TOC, TSS, TP, & TN). Table 6.2 for indirect emissions to water is not applicable.	
Emission from accidents and incidents			
BAT 21	Incident prevention and management controls	Applicable	12
Material efficiency			
BAT 22	Use of material efficiently by substituting materials with waste	The specific measures listed are not applicable to non-waste AD however you must still demonstrate the overarching aim of using resources efficiently.	13
Energy Efficiency			
BAT 23	Energy use controls	Applicable – where waste treatment is referenced, this should be regarded as non-waste treatment	13
Reuse of packaging			
BAT 24	Reuse of packaging to reduce waste	Limited applicability – relates mainly to incoming feedstock packaging.	13
BAT 25-32		Not applicable to non-waste AD	n/a
BAT Conclusions for the Biological Treatment of Waste			
BAT 33	Selecting inputs for optimal system performance and reduction of odour	Applicable - the term 'waste' here is directly interchangeable with 'non-waste' feedstock	8.2
BAT 34	Using appropriate treatment to reduce channelled emissions to air. This includes a table setting out the emission limits you must achieve	Applicable – appropriate abatement techniques must be in place to achieve the emission limits in table 6.7 (only the limits for 'all biological treatment of waste' is relevant)	9.12
BAT 35	Reducing wastewater generation and water usage	Applicable.	9
BAT 36 & 37		Not applicable to non-waste AD	n/a
BAT Conclusions for the Biological Treatment of Waste			

BAT 38	Monitor key process parameters to optimise environmental performance	Applicable - the term 'waste' here is directly interchangeable with 'non-waste' feedstock	8.4, 8.5
BAT 39-53		Not applicable to non-waste AD	n/a

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