

Permitting Decisions- Bespoke Permit

We have decided to grant the permit for Glenthams Anaerobic Digestion Plant operated by Glenthams Green Energy Limited.

The permit number is EPR/JP3925SN.

The permit was granted on 06/08/2025.

The permit covers the operation of an Anaerobic Digestion Facility including the storage and processing of feedstock with the resultant biogas being upgraded and injected into the grid via a network entry facility. The feedstock to be processed at the facility will consist of maize, straw, chicken manure, potato waste, straw farmyard manure and occasionally rye with a maximum of 41,070 tonnes of feedstock per year.

Any straw delivered to the Facility will first undergo pre-treatment prior to storage. The pre-treatment will consist of string removal, bale breaking, impact crushing, water addition and extrusion. Plant feedstock comprising maize, and straw will be delivered on site and stored within dedicated covered clamps. Chicken litter, pig and cattle manures and potato waste will be brought onto site, sheeted and stored temporarily on hardstanding clamps with sealed drainage before being inputted into the digestion process.

When required the feedstock will be fed into one of the two identical anaerobic digestion treatment lines. The feedstock will be placed into the feed hopper, where initial mixing of the feedstock will take place before transferring the materials into the Continuous Stirred Tank Reactors (CSTR). The materials are retained within the CSTR for 25 days at which point the resulting digestate passes through to a Plug Flow Reactor (PFR). The biogas generated within the CSTR is also routed into the PFR.

The PFR feedstock is retained for a total of 25 days as it passes through the PFR pipework. The final digestate produced from the PFR digestion process passes through a screw press to separate the solid and liquid fractions. The liquid fraction is routed to a digestate lagoon for storage prior to use for irrigation on the adjacent agricultural land. The solid fraction is stored within a bunker prior to use as a soil improver on the adjacent agricultural land.

The biogas resulting from the PFR digestion process is then piped from the PFR to be upgraded and injected into the grid via a network entry facility. Two CHP units, each with a net rated thermal input of 3.495WTh, fuelled by natural gas will deliver heat and power to the Facility. The facility is located 800m from the

community of Glenthams with the nearest residence being 706m away, there are no SSSI within 10,000m of the facility.

The main emissions to atmosphere from the installation are exhaust gases from the combustion plant (emergency diesel generator, CHP engine and emergency flare) and the venting of unburned biogas via pressure relief valves (PRVs) serving the digesters. All emissions have been assessed in line with our technical guidance and appropriate emissions limits set in the permit.

There are no process discharges to controlled waters or sewer. Uncontaminated rainwater falling within non-operational areas will be collected in a surface water lagoon and will be used for site processes. The site is provided with surfacing and secondary containment constructed in line with industry best practice standards to reduce the impact of pollution to surface water and groundwater.

The installation operates under an Odour Management Plan (OMP). This includes detailed control measures to minimise odour emissions from the permitted activities and actions to be taken in the event of an odour complaint.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

Purpose of this document

This decision document provides a record of the decision-making process. It:

- summarises the decision making process in the decision considerations section to show how the main relevant factors have been taken into account
- highlights key issues in the determination

Unless the decision document specifies otherwise, we have accepted the applicant's proposals.

Read the permitting decisions in conjunction with the environmental permit.

Key issues of the decision

Management of sources of odour on site

The primary odour control measures are the minimisation of storage durations of odorous materials and use of enclosed abatement methods when required. Waste feedstocks are stored in sheeted clamps and are only removed when waste is added or removed from the piles, over the course of a day the sheeted clamps will be open for 1 hour 30 minutes.

Effluent drainage from the storage of waste and non-waste feedstock is stored within the dirty water lagoon from which it is fed back into the system.

The storage of waste on site is not in line with BAT conclusion 14, BAT 14c states that storage of waste on site must be within an enclosed building with an abatement system. The site has Potato waste, poultry manure and cattle/pig manure stored within sheeted outside clamps with no enclosed abatement system.

The applicant provided alternative techniques. It was deemed that this was acceptable due to several factors on site that lowered the odour risk. This includes the remote rural location of the site, with the nearest residential receptor being 700m away, and the land use of the neighbouring area as farmland. The site also has put in place a process that ensure short storage times on site, with all waste types remaining on site for a maximum of 2 days.

The storage of wastes in clamps is in accordance with Standard Rules permit SR2021 No 8: on-farm anaerobic digestion facility using farm wastes only, including use of the resultant biogas – installations.

Containment and abatement of odorous emissions

Abatement method will be utilised for abating the odour of the liquid digestate lagoon, the use of an enclosed abatement system was required to be in line with BAT 14 with several properties at risk of increased odour emissions as outlined in the applications odour modelling.

Compliance with BAT-AELs

We agree with the justification of BAT at this installation. As part of the Environment Agency approach to reduce emissions in the biowaste treatment sector, we have set improvement condition 5 (IC5). The improvement condition requires the operator to review abatement plant on site, in order to determine whether the abatement plant is effective and adequate to prevent and /or minimise emissions released to air. Where further improvements are identified, the operator is required to implement these measures.

Our Assessment

We consider that the applicant has proposed suitable odour management measures to minimise potential impacts on nearby sensitive receptors. Regular monitoring, including daily smell checks at the site boundary, will help confirm that odour emissions remain under control.

We have reviewed and approved the current version of the OMP, including the additional information submitted during the determination process. We find that the OMP meets the requirements of our Technical Guidance H4 – *Odour Management* and *Biological Waste Treatment: Appropriate Measures for Permitted Facilities* (updated 25 November 2024). We agree with the scope and effectiveness of the key measures proposed. However, this approval does not confirm that the design, operation, or maintenance of specific equipment is adequate—that responsibility remains with the operator.

Based on the information provided in the application, we are satisfied that appropriate measures will be in place to prevent odour pollution, or where prevention is not possible, to minimise it

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

The decision was taken in accordance with our guidance on confidentiality.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality.

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- West Lindsey District Council
- The UK Health Security Agency (UKHSA)

- Lincolnshire County Council

The comments and our responses are summarised in the [consultation responses](#) section.

Operator

We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.

The regulated facility

We considered the extent and nature of the facility at the site in accordance with [RGN2 'Understanding the meaning of regulated facility'](#), [\[Appendix 2 of RGN2 'Defining the scope of the installation'\]](#), [\[Appendix 1 of RGN 2 'Interpretation of Schedule 1'\]](#).

The operator has provided the grid reference for the emission points from the medium combustion plant

The extent of the facility are defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan which we consider to be satisfactory.

The plans show the location of the part of the installation to which this permit applies on that site.

The plan is included in the permit.

Site condition report

The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Operating techniques for emissions that screen out as insignificant

Emissions of Process Contributions have been screened out as insignificant, and so we agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

We consider that the emission limits included in the installation permit reflect the BAT for the sector.

Odour management

We have reviewed the odour management plan in accordance with our guidance on odour management.

We consider that the odour management plan is satisfactory and we approve this plan.

We have approved the odour management plan as we consider it to be appropriate measures based on information available to us at the current time. The applicant should not take our approval of this plan to mean that the measures in the plan are considered to cover every circumstance throughout the life of the permit.

The applicant should keep the plans under constant review and revise them annually or if necessary, sooner if there have been complaints arising from operations on site or if circumstances change. This is in accordance with our guidance 'Control and monitor emissions for your environmental permit'.

The plan has been incorporated into the operating techniques S1.2.

Waste types

We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.

We are satisfied that the operator can accept these wastes for the following reasons:

- they are suitable for the proposed activities
- the proposed infrastructure is appropriate; and
- the environmental risk assessment is acceptable.

Pre-operational conditions

Based on the information in the application, we consider that we need to include pre-operational conditions.

Pre-operational condition for suitability of site secondary containment

- required to ensure the sites secondary containment is in compliance with CIRIA C736 and is suitable for the site in regard to containment volume and physical condition.
- That an adequate maintenance and inspection regime is in place.

Pre-operational condition for suitability of site digestate /leachate storage lagoon

- required to ensure the sites secondary containment is in compliance with CIRIA C736 and is suitable for the site in regard to containment volume and physical condition.
- That an adequate maintenance and inspection regime is in place.

Pre-operational condition for suitability of primary containment

- Required to assess the extent design specification and condition of primary containment systems where polluting liquids and solids are being stored, treated, and/or handled.

Pre-operational condition for operational contingency storage capacity

- Required to examine site contingency arrangements in the event of closed landspreading periods, extreme weather conditions, site closure, disease outbreak etc. to ensure they are adequate for the site

Pre-operational condition for final site Environmental Management System

- Required to ensure a full copy of the site EMS is provided for the Environment Agency to inspect to ensure the EMS shall cover all activities at the installation in accordance with Environment Agency Guidance.

We are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the operator to ensure compliance with all the permit conditions.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme.

We have included an improvement programme to ensure the following:

IC1 & IC2

- Comprehensive monitoring will be carried out to verify assumptions made in relation to the site's pollutants to air through obtaining operational monitoring data.
- Upon completion of this monitoring the operator will have to undertake an emissions impact assessment (H1 software tool), which will be reviewed by the Environment Agency.
- In the event that long or short terms impacts are identified the operator will have to propose an action plan to reduce said impacts.

IC3

- This improvement condition is required to ensure that any methane slip emissions above the manufacturer's specifications are corrected when identified.

IC4

- This improvement condition is required to ensure that the LDAR plans are in line with Section 11.9 of *Environment Agency guidance, Biological waste treatment: appropriate measures for permitted facilities* and BS EN 17628 when designing the LDAR programme and consider the use of optical gas imaging cameras in addition to the mandatory application of 'sniffer' techniques according to BS EN 15446.
- This will be subject to an Environment Agency Review to ensure that the LDAR plan is in line with these requirements.

IC5

- IC5 ensures that the operator must review the effectiveness of their abatement.
- In the event of ineffectiveness of the abatement system on site, the operator will have to implement improvements in line with the timescales as approved by the Environment Agency.

Emission Limits

Emission Limit Values (ELVs) and equivalent parameters or technical measures based on Best Available Techniques (BAT) have been for the following substances:

Emission points to air

- Oxides of Nitrogen
- Sulphur dioxide
- Carbon monoxide
- Odour concentration
- Ammonia

Please refer to Table S3.1 of the permit for further details.

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.

These monitoring requirements have been included in order to comply with the Waste Treatment BAT Conclusions. We made these decisions in accordance with Waste Treatment BAT Conclusions.

Based on the information provided within the application we are satisfied that the Operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate. Please refer to Tables S3.1 of the permit for further details

Reporting

We have specified reporting in the permit. We made these decisions in accordance with Waste Treatment BAT Conclusions. Please refer to Table S4.1 of the permit for further details

Management System

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

Technical Competence

Technical competence is required for activities permitted.

The operator is a member of the CIWM/WAMITAB scheme

We are satisfied that the operator is technically competent.

There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation Responses

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public, newspaper advertising and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section:

Response received from Director of Public Health, Lincolnshire County Council

Brief summary of issues raised:

- Clarification on the gas capture/abatement capacity of lagoons.
- Provision of the site's Fire Prevention Plan referred to in the Accident Management Plan to ensure it meets the Environment Agencies standards for the site.
- That the environment agency deems the site's odour modelling to be reflective of the processes conducted at the site.

Summary of actions taken:

- The *abatement method* shall be installed on the lagoon to ensure effective abatement of odour emissions.
- The requirement for a Fire Prevention Plan was reviewed and was deemed not required within the application following our internal guidance.
- The odour modelling provided by the applicant was not used for our determination. We do not accept odour modelling for permit applications. We considered the Risk Assessment and the Odour Management Plan for this application.

Response Received from the UK Health Security Agency (UKHSA)

Brief summary of issues raised:

- Clarification on the gas capture/abatement capacity of lagoons.
- Provision of the site's Fire Prevention Plan referred to in the Accident Management Plan to ensure it meets the Environment Agencies standards for the site.
- That the environment agency deems the site's odour modelling to be reflective of the processes conducted at the site.

Summary of actions taken:

- It was confirmed that the applicants had not planned to implement enclosed abatement to the liquid digestate lagoon, as this was not in line with BAT we have required that ***abatement method*** shall be installed to ensure effective abatement of odour emissions
- The requirement for a Fire Prevention Plan was reviewed and was deemed to be not required within the application following our internal guidance
- The odour modelling provided by the applicant was not used for our determination. We do not accept odour modelling for permit applications. We considered the Risk Assessment and the Odour Management Plan for this application.

No comments from West Lindsey District Council.

No further comments were received as part of the consultation.