

## Permitting Decisions - Bespoke Permit

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We have decided to grant the permit for Lower Drayton Farm AD operated by BioConstruct NewEnergy Ltd.

The permit number is EPR/EP3507BH.

The application is for a new biological treatment facility treating agricultural wastes to produce biogas. It will operate under a S5.4 A(1)(b)(i) – Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 100 tonnes per day involving biological treatment activity. The site will process up to 41,000 tonnes of the agricultural feedstocks annually, this will consist of poultry manure, farmyard manure, straw and silage.

The installation is located on a 3.8 hectare plot of land on Lower Drayton Lane at national grid reference SJ 93054 15474. The site is directly to the south of Lower Drayton Farm and 700 metres to the north of Penkridge town. The closest residential properties are in Lower Drayton 250 metres to the north east.

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
- shows how we have considered the [consultation responses](#)

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

## Odour

Odour is a key concern for this site due to its sensitive location and the nature of the activities. We have therefore requested an odour management plan to address the potential for release of odour.

### Inventory of potential odour sources:

- 4 x silage clamps (total 12,000 tonnes capacity)
- Solid feed hopper (155 m<sup>3</sup> capacity)
- Ekogea feedstock micronisation system
- Buffer tank (610 m<sup>3</sup> )
- 2 x digesters (3,325 m<sup>3</sup> and 4,619 m<sup>3</sup> capacity)
- Digestate storage tank (3,325 m<sup>3</sup> )
- Screw press separator (in place as contingency)
- Digestate off-take point
- Ekogea digestate thickening system comprising:
  - Polymer dosing unit
  - 2 x concentrators
- Grey water storage tank (50 m<sup>3</sup> )
- Ekogea grey water polishing plant
- Polished water storage tank (50 m<sup>3</sup> )
- Biogas treatment comprising:
  - Chiller
  - Ammonia scrubber
  - Carbon filter
  - Compressors
- Gas upgrade unit (Pentair) 1.34 MWth combined heat and power (CHP) engine (2G Avus 500 plus)
- Dual fuel emergency flare
- Surface water infiltration pond
- Underground leachate tank
- Dirty water lagoon (1,140 m<sup>3</sup> )

Feedstock inventory:

Feedstock	Approximate daily treatment capacity	Approximate annual treatment volume
Poultry Manure	28	10,110
Farmyard Manure	44	16,000
Rapeseed Straw	10	3,500
Maize Silage	18	6,500
Grass silage	12	4,500
Total (annual throughput)	112	40,610

Receptors considered in the odour management plan:

Closest sensitive receptors	Distance (Metres)
Farmyard Storage Area	60
Outdoor Animal Zone	89
Play barn	110
Picnic area	128
Farmyard	133
B&B/ Educational	167
Outdoor Animal Zone	193
Self-contained holiday accommodation	173
Lower Drayton Farm	192
Chase Aqua Rural Enterprise (CARE)	202
Residential property, Teddesley Road	273
Residential properties, Lower Drayton Road	291

All receptors in the table above with the exception of the residential properties on Teddesley Road and Lower Drayton Road are associated with Lower Drayton Farm.

Odour controls:

- All silage is covered with waterproof sheets. Exposure of the silage from under cover during loading will be limited to a small working face.
- Daily inspection and cleaning of reception area and drains to ensure silage covers are intact and drains are clear.
- Manure waste will be stored on site for a maximum of 12 hours before processing.

- Iron pellet filters will be in place for displaced air from vents on micronisation, concentration and water polishing plant which have the potential to cause H<sub>2</sub>S emissions, spare filters kept on site, vents monitored for ammonia, H<sub>2</sub>S and volatile organic compounds.
- Emergency flare is available to deal with biogas in case of abnormal operation of the facility (such as blocked pipes). Flare specifications are in line with BAT requirements to remove odorous compounds if required.
- Automated SCADA system monitors key parameters of the process ensuring it stays within optimal operating conditions.
- Micronisation process will reduce likelihood of odorous digestate being generated by the process.
- Polished water maintained at pH 7-8 to prevent odour release when discharged into the infiltration lagoon.
- Biogas storage tanks contain desulphurisation nets and low level oxygen injection to reduce H<sub>2</sub>S levels in the gas generated.
- Three stage process to remove moisture, ammonia and hydrogen sulphide from the biogas via a chiller, scrubber and carbon filter before combustion in the CHP engine.
- Daily olfactory monitoring at representative locations carried out by suitable personnel and recorded appropriately. General actions upon identification of odour include:
  - Investigating pollution incident and cause.
  - If odour monitoring indicates that abnormal emissions from the facility are taking place, the plant manager will be informed immediately and will check relevant items of odour control equipment in order to identify the possible cause of the abnormal emission.
  - Bringing the process back under control.
  - Ceasing the activity causing the abnormal situation and/or if necessary, arrange for the immediate removal of any odorous materials giving rise to the problems.
  - Taking immediate steps to eliminate the cause of the abnormal situation.
  - Contacting the relevant maintenance contractor if necessary.
  - Recording the response to the situation and the remedial actions taken.

- Advising the Environment Agency with regards to the possibility of complaints, details of the problem, and mitigation/improvement measures undertaken.

If these actions fail to resolve the problem, they will be followed by temporary restrictions of feedstock acceptance and throughput. Following resolution of the issue, further olfactory monitoring will be carried out to ensure effectiveness of measures and a review of the current odour management plan undertaken. All parties affected by the issue will be notified of the cause, actions and resolutions.

- The operator has committed to liaison with local residents and the Environment Agency co-ordinated by the plant manager notifying them of activities that have the potential to generate odours and any activities taking place outside of normal operating hours.
- Complaint response and report within 24 hours of receipt of complaint. If the odour complaint is confirmed to have been caused by odour from the manure in the feedstock, the stockpile will be identified as a priority and either immediately processed or removed from the site. Any exposed manure within the hopper will be covered immediately with silage (minimum 50 cm depth). The success of the contingency measures will be confirmed through an additional documented odour survey at the on-site odour source and at the affected off-site receptor location(s).
- Waste streams having been found to be causing odour issues will be reviewed to check adherence to feedstock acceptance/rejection procedures.
- Reviewing and potential reduction of storage times and loads for manures in the event of a complaint, culminating in the complete stoppage of temporary manure storage, removal of manure from site and wash down of the storage area if odour issue endures.
- Critical failure of site plant contingency includes stopping receipt of feedstocks, containment of spillages and odours; clean up/ wash down procedures and containment of waste into sealed containers, covering or removal from site within 24 hours.

#### Our assessment:

Overall, we consider that the applicant has proposed appropriate odour management measures to minimise any impact on nearby sensitive receptors. In the event that odour emissions are causing pollution, the permit conditions require the operator to comply with the measures specified in the OMP. We can

in turn require amendments to the OMP that must be complied with. The odour conditions in the permit are sufficient to ensure that odour emissions from the AD plant do not cause annoyance. Process monitoring conditions including daily olfactory tests at the site boundary will also ensure that emissions of odour are not causing annoyance.

We have reviewed and approved the OMP in its current format with the additional information submitted during the determination. We consider that the OMP complies with the requirements of our [H4 odour guidance](#). Odour modelling was submitted in support of the application, it showed that modelled concentrations of odour are below the 3.0 OUE/m<sup>3</sup> benchmark for moderately offensive odours at all sensitive receptors and are unlikely to result in significant levels of odour. This plant fits the description for moderately offensive in appendix 3 of the [H4 odour guidance](#).

Based upon the information in the Application, we are satisfied that appropriate measures will be in place to prevent or where that is not practicable to minimise odour and to prevent pollution from odour.

We have also imposed an improvement programme within the permit which requires the operator to review the abatement plant on site within 6 months of operation, in order to determine whether existing measures have been 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.

## **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:

- Local Authority Environmental Health - Staffordshire County Council
- Food Standards Agency
- Director of Public Health - Staffordshire County Council
- Public Health England
- Health and Safety Executive

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 extent of the facility is 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.

These show the extent of the site of the facility.

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.

## **Nature conservation, landscape, heritage and protected species and habitat designations**

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

We have not consulted Natural England.

The decision was taken in accordance with our guidance.

## **Environmental risk**

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory.



## **Climate change adaptation**

We have assessed the climate change adaptation risk assessment.

We consider the climate change adaptation risk assessment is satisfactory.

## **General operating techniques**

We have reviewed the techniques used by the operator and compared these with the Waste Treatment BREF /BAT Conclusions 2018 and 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 sulphur dioxide, nitrogen oxides, hydrogen sulphide, carbon monoxide and total volatile organic compounds 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.

## **National Air Pollution Control Programme**

We have considered the National Air Pollution Control Programme as required by the National Emissions Ceilings Regulations 2018. By setting emission limit values in line with technical guidance we are minimising emissions to air. This will aid the delivery of national air quality targets. We do not consider that we need to include any additional conditions in this permit.

## **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.

## **Raw materials**

We have specified limits and controls on the use of raw materials and fuels.

Vegetable matter (energy crops) – Substantially free of non-vegetable matter

Maize silage – Substantially free of non-vegetable matter

## **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.

We made these decisions with respect to waste types in accordance with our guidance on anaerobic digestion facilities.

## **Pre-operational conditions**

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

PO1 has been inserted in order to ensure an effective leak detection system is installed on the underground leachate tank in line with BAT requirements for underground tanks.

## **Improvement programme**

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

The emissions data from the biogas upgrading plant were obtained from the manufacturer and not based on real-time operational monitoring data. We

consider it appropriate to set an Improvement Condition (IC1) which requires the operator to undertake a monitoring survey following the commencement of operations at the biogas upgrading plant to obtain actual (real-time) operational monitoring data.

Improvement Condition 2 (IC2) requires the operator to undertake an air emissions impact assessment (H1 software tool) using the results of the monitoring survey and compare the long and short term impacts of pollutants in accordance with the Environment Agency Guidance – Air emissions risk assessment for your environmental permit. Following the review of results from the monitoring survey and impact assessment, the Environment Agency shall consider whether or not emission limits are appropriate at emission point A6. We have used this approach for biowaste treatment facilities proposing to install biogas upgrading plants across England.

Improvement condition 3 (IC3) has been inserted to address methane slip emissions from the CHP engine as it burns biogas and to ensure that the exhaust gas from the CHP engine meets the manufacturer's specification and benchmark levels, it also requires that the operator develops proposals for corrective actions where emissions are above those expected.

Improvement condition 4 (IC4) has been inserted to ensure that the abatement plant on site is effective and adequate to prevent and where not possible minimise emissions released to air.

## **Emission Limits**

Emission Limit Values (ELVs) and technical measures based on BAT have been added for the following substances:

### **CHP engine**

Oxides of nitrogen – 500 mg/m<sup>3</sup>

Sulphur dioxide – 107 mg/m<sup>3</sup>

Carbon monoxide – 1400 mg/m<sup>3</sup>

The CHP limits set are based on the emission limits the operator confirmed the combustion plant is able to meet, in line with the requirements set out in the Medium Combustion Plant Directive.

### **Emergency Flare:**

Oxides of nitrogen – 150 mg/m<sup>3</sup>

Sulphur dioxide – 50 mg/m<sup>3</sup>

Total VOCs – 10 mg/m<sup>3</sup>

**Vents on water polishing plant, concentrator plant and micronisation plant:**

Ammonia – 20 mg/m<sup>3</sup>

It is considered that the descriptive and numeric limits described below will prevent significant deterioration of receiving waters.

**Emission to water of uncontaminated site surface water from roofs and non-operational areas:**

Oil and grease – No visible oil or grease

**Emissions from polished water tank and bunded areas:**

Oil and grease – No visible oil or grease

Total organic carbon (TOC) – 60 mg/l

Chemical oxygen demand (COD) – 180 mg/l

Total nitrogen – 25 mg/l

Total phosphorus – 2 mg/l

Total suspended solids – 60 mg/l

## **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 demonstrate compliance with the relevant permit conditions and ensure emissions to air and groundwater do not have a significant impact.

We made these decisions in accordance with Waste Treatment BREF/BAT Conclusions 2018 and our guidance on Medium Combustion Plant, LFTGN 05: Guidance for monitoring enclosed landfill gas flares and our Monitoring discharges to water guidance.

Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.

## **Reporting**

We have specified reporting in the permit. As the monitoring of point source emissions to air is only required annually, reporting is also required annually. Reporting forms have been prepared to facilitate reporting of data in a consistent format. These reporting requirements are deemed sufficient and proportional for the Installation. We made these decisions in accordance with the Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013).

## **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.

We only review a summary of the management system during determination. The applicant submitted their full management system. We have therefore only reviewed the summary points.

A full review of the management system is undertaken during compliance checks.

## **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.

## **Previous performance**

We have assessed operator competence. We have noted the past poor performance of BioConstruct NewEnergy Ltd.

Our concern is in respect to odour incidents occurring recently on other BioConstruct NewEnergy Ltd sites, however this site differs from the other sites in question because it takes agricultural waste only. The operator has also addressed the potential for odour emissions via a suitable odour management plan.

Taking this into account, we do have concerns about operator competence but we have considered this and on balance we have decided to issue the permit. We take compliance with our permits very seriously. We will be monitoring the

site, and if performance is poor, then appropriate enforcement action will be taken, and we will reconsider the Operator's suitability to hold a permit.

We have checked our systems to ensure that all relevant convictions have been declared.

No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.

## **Financial competence**

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, and the way in which we have considered these in the determination process.

## **Responses from organisations listed in the consultation section:**

Response received from Public Health England:

Brief summary of issues raised: Public Health England confirmed their main concerns were around emissions to air of biogas and odours and that they were satisfied with the detailed air quality assessment and the measures in the odour management plan.

*'Based on the information contained in the application supplied to us, Public Health England has no significant concerns regarding the risk to the health of the local population from the installation. This consultation response is based on the assumption that the permit holder shall take all appropriate measures to prevent or control pollution, in accordance with the relevant sector guidance and industry best practice.'*

Summary of actions taken: No further action required.

No other consultation responses were received.