

Permitting Decisions- Variation

We have decided to grant the variation for Bio Dynamic AD Plant operated by Bio Dynamic (UK) Limited.

The variation number is EPR/DP3935ER/V007.

The permit was issued on 11/03/2024

The variation is for an increase to annual throughput of the listed activity from the existing 50,000 tonnes per annum(tpa) to 130,000 tpa (an increase of 80,000 tpa), with significant refurbishment at site to uplift infrastructure in line with current BAT. Key changes include:

- Adding a new waste storage, treatment, and transfer station facility, with a throughput of 20,000 tpa.
- Adding two new combined heat and power (CHP) engines.
- Adding one backup dual fuel boiler.
- Adding a second emergency backup flare.
- Adding the transfer of biogas off-site to the adjacent biogas upgrading unit as a waste activity.
- Partial surrender of land associated with the biogas upgrading unit site.

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:

- highlights [key issues](#) in the determination.
- summarises the decision making process in the [decision considerations](#) section to show how the main relevant factors have been taken into account
- 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 and the variation notice.

Key issues of the decision

Odour emissions

The applicant provided an odour assessment with modelling to support their odour management plan. The assessment concluded that predicted odour concentrations were below the relevant benchmark level at all sensitive residential locations in the vicinity of the site for all modelled years. As such, potential odour emissions from the facility are not considered to be significant.

Our assessment

The odour abatement system at the site has been reviewed and updated as part of the plant refurbishment and a new BAT compliant system installed. The sources of odour emissions are treated by adsorption, using activated carbon filtration abatement, recognised as an appropriate technique for the treatment of emission generated by biowaste processes.

The activities will be conducted in the manner described in the Biological waste treatment: appropriate measures for permitted facilities and will be subject to emission monitoring requirements set out in the permit. To ensure we have a representative emissions profile for the site moving forward, we have included an Improvement Condition (IC5) requiring the operator to provide post commissioning performance testing and evaluation. This shall be completed within three months of the variation notice issue.

Odour Management Plan

The odour management plan submitted required further information to complete our determination and this information was requested via a schedule 5 notice dated 16/11/2023. The operator's response dated 20/11/2023, included a final revised odour management plan to address the risk of odour emissions from the facility. The operator is required to operate at all times in accordance with the odour management plan to prevent pollution arising from odours and implement mitigation measures in line with the plan.

Our assessment

As a critical document for odour control for this installation, we are satisfied that the odour management plan complies with the current guidance; Environmental permitting: H4 odour management and Biological waste treatment: appropriate measures for permitted facilities.

Noise

With an increase of production and significant changes to infrastructure at site, the applicant provided a noise modelling report and a noise management plan.

The noise modelling report was undertaken to include the addition of two new CHP engines, a boiler unit, and an increase in vehicle movement. It concluded that noise emissions from the site are low impact at nearby residential receptors.

Our assessment

Sensitivity check modelling was conducted and found similar specific sound levels to those in the report.

We are satisfied that the noise emissions from the site are likely to cause a low impact at residential receptors and the management procedures are adequate to control noise on the site, particularly given the industrial context of the wider area in which the site is situated.

The noise management plan is a site-specific standalone working document used to identify the mitigation measures which will be implemented to minimise any potential noise impacts. It is tied into the operational techniques of the site and includes procedures for managing complaints. Following further information in response to a schedule 5 notice issued 16/11/2023, we are satisfied the noise management plan submitted is in line with our guidance.

Storage capacity

The site will have an annual increase of throughput from the 50,00 tpa to 130,000 tpa (an increase of 80,000 tpa). There is no change to the overall site footprint or permit boundary. The refurbishment of the shed and existing tankage and addition of new tanks at the site will result in an increase in waste storage capacity for wastes prior to treatment.

Our assessment

Following further information in response to a schedule 5 notice issued 16/11/2023, the operator provided evidence on the control procedures and appropriate measures, for the storage, segregation, transfer, and handling of wastes. We have assessed the information, and we are satisfied that the site will operate within the operational capacity, and in line with our guidance for the increased production as part of this variation.

Decision considerations

The operator has proposed to include the following wastes (see table below). The waste streams are listed in our revised biowaste treatment permit template. We have included these wastes in the current permit provided the operator undertakes a detailed characterisation of the wastes prior to acceptance for treatment at the site in accordance with BAT 2a (Set up and implement waste characterisation and pre-acceptance procedures).

Waste code	Description
04 02 10	Organic matter from natural products, e.g. grease, wax
16 10 02	Untreated wash waters from cleaning fruit and vegetables on farm only
16 10 02	Milk and dairy waste milk from agricultural premises only
16 10 02	Liquor/leachate from a composting process that accepts waste input types listed within the Biowaste treatment permit template and in compliance with Animal By-Products Regulations
19 02 06	Sludge types from waste listed within the Biowaste treatment permit template, Table S2.2, that have been heat treated only

We made this decision with respect to waste types in accordance with the Framework Guidance Note – *Framework for assessing suitability of wastes going to anaerobic digestion, composting and biological treatment (July 2013)*.

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

The application was publicised on the GOV.UK website.

We consulted the following organisations:

- United Kingdom Health Security Agency (UKHSA)
- Health and Safety Executive (HSE)
- Local authority – Environmental Health
- Food Standards Agency (FSA)

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

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', and Biological waste treatment: Appropriate Measures for permitted facilities.

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 plans which we consider to be satisfactory.

These show the extent of the site of the facility.

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.

A new biogas upgrading facility which is a standalone directly associated activity (DAA) to the main activity, has been developed within the current footprint of the site, but is managed completely separately, by a different named operator, BD Gas Permits Limited (permit reference: EPR/KP3707LX).

To address the overlapping boundaries of the Bio Dynamic UK Limited site and the BD Gas permits Limited site, a partial low risk surrender has been incorporated into this variation by Bio Dynamic UK Limited. The site boundaries are separate from each other, and we agree that the surrender is low risk.

The AD operation will export biogas to the neighbouring BD Gas Permits Limited upgrading facility and will receive any off-specification gas and condensate returns from the site for further processing, storage or burning to flare.

We are satisfied that the applicant has taken necessary measures to avoid a pollution risk from the operations of the regulated facility and returned the site to a satisfactory state, having regard to the state of the site before the facility was put into operation.

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 not 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.

As part of the variation two new spark engines, fuelled on biogas from the anaerobic digestion plant and enabled for combined heat and power, and a back-up dual fuel boiler as a contingency measure have been included. The engines are containerised and fitted with individual stacks. The applicant submitted an air quality assessment for emissions from the CHP engines and back-up boiler. See Environmental Risk.

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

Environmental risk

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

The operator's risk assessment is satisfactory.

The site has undergone significant refurbishment to uplift infrastructure in line with current BAT. All digesters will be located within an impermeable concrete bund, designed to contain any spillages arising from the site and sized to contain at least 110% of largest vessel or 25% of total tankage volume.

The facility containment bund is designed to be impermeable with a series of retaining walls and concrete base (slab), that enclose the key operations. An impermeable membrane liner underlies the concrete surface.

A CIRIA C736 risk assessment was undertaken as part of the permit application. The assessment concluded that the site is compliant with BAT guidance and CIRIA C736, for both primary and secondary containment.

The site has an impermeable surface preventing emissions to soil or groundwater. The Waste reception has an internal drainage system that collects in two sealed sumps and pumped back into the process. Surface water from the roofs and from the concrete bunded area is collected via sumps, stored in tanks, and also used in the process.

Emissions contained within the waste reception and processing areas are extracted and vented to atmosphere via carbon filters. The odour abatement system will treat air displaced via dedicated stacks and vents across the site.

An air quality assessment supporting the four engines and boiler was undertaken as part of the application. The assessment concluded that all pollutants were below the relevant Environmental Quality Standards (EQSs). Resultant impacts were classified as not significant.

A site specific bioaerosol risk assessment demonstrated that carbon filter abatement measures will prevent or where this is not possible significantly reduce the risk of bioaerosols release. There are no external site operational processes and bioaerosol point sources are not within 250 metres of a sensitive receptor, and therefore do not pose a risk to sensitive receptors or require monitoring of bioaerosols at the site.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may be screened out as environmentally insignificant.

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 relevant guidance notes are as follows:

- Biological waste treatment: appropriate measures for permitted facilities, 21 September 2022, GOV.UK
- Best available techniques (BAT) for Waste Treatment as detailed in document reference 2010/75/EU
- Best Available Techniques (BAT) Conclusions for Waste Treatment as detailed in document reference C (2018) 5070
- Medium Combustion Plant Directive (MCPD)

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 nitrogen oxides, sulphur dioxide, carbon monoxide and volatile organic compounds (VOCs) 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'.

Noise and vibration management

We have reviewed the noise management plan in accordance with our guidance on noise assessment and control.

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

In line with our guidance, we consider the noise management plan to have 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'.

Fire prevention plan

We haven't requested a Fire Prevention Plan at this time, but we will request one in the future if we consider the site poses a risk of fire.

We do not consider that there is any increase to fire risk as a result of this variation. The site has been designed according to a Hazard and Operability Study (HAZOP), and subject to a full Dangerous Substances and Explosive Atmospheres (DSEAR) assessment which have been updated based on the site changes. Permitted waste types are non-hazardous and process material is in the form of liquid slurries or moist feedstock, and we consider they do not therefore pose a high fire risk. The operator has hosted a visit at the site with the local fire and rescue service. The nearest fire hydrant is located 300m away and the fire and rescue service indicate that the river Trent could be used as a source of water in an emergency.

Raw materials

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

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 the Framework Guidance Note – *Framework for assessing suitability of wastes going to anaerobic digestion, composting and biological treatment (July 2013)*.

Improvement programme

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

We have updated the improvement programme requirements from the previous permit to demonstrate:

- IC1- has been assessed as complete as part of the application.
- IC2 - has been assessed as complete as part of the application.
- IC3 & 4 - has been assessed as complete as part of the application.
- IC5- will be retained for review of effectiveness of abatement plant.
- IC6- will be retained for assessment of methane slip from the engines.

IC5- Improvement condition relates to the effectiveness of abatement plant. The site has undergone a change/upgrade of the current odour abatement measures to manage the risk arising from emissions from site activities. The operator will make a submission as specified against the improvement condition relating to the newly installed abatement once performance monitoring has been achieved and an analysis of the results undertaken.

IC6- Improvement condition to address methane slip emissions from gas engines burning biogas. Two new CHP engines, which will be in addition to the two pre-

existing engines and a dual fuel boiler, are permitted to be installed at the site as part of this variation. The operator will make a submission as specified against the improvement condition relating to the new gas engines burning biogas.

Emission limits

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

Emission points to air

- Nitrogen oxides
- Sulphur dioxide
- Carbon monoxide
- Total volatile organic compounds

The amendments reflect the addition of;

- two new combined heat and power (CHP) engines- Emission point reference A5 and A6
- one backup dual fuel boiler- Emission point reference A14

It is considered that the ELVs described will ensure that significant pollution of the environment is prevented, and a high level of protection for the environment secured.

Monitoring

We have decided that monitoring should be amended for the following parameters, using the methods detailed and to the frequencies specified:

- Nitrogen oxides
- Sulphur dioxide
- Carbon monoxide
- Total volatile organic compounds

The amendments reflect the addition of;

- two new combined heat and power (CHP) engines- Emission point references A5 and A6
- one backup dual fuel boiler- Emission point reference A14

These monitoring requirements have been included in order to comply with the Waste Treatment BAT conclusions and meet the requirements of the Medium Combustion Plant Directive.

We made these decisions in accordance with Waste Treatment BAT Conclusions 2018, the Medium Combustion Plant Directive and Specified Generator Regulations, and LFTGN 05: Guidance for monitoring enclosed landfill gas flares.

Please refer to Table 3.1 of the permit for further details.

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 added reporting in the permit for the following parameters.

- Recovered outputs

Assessment is required annually, and therefore annual reporting shall be submitted for these parameters.

We made these decisions in accordance with our technical guidance; How to Comply with your Environment Permit.

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.

Previous performance

We have assessed operator competence. There is no known reason to consider the applicant will not comply with the permit conditions.

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 variation.

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

Responses from organisations listed in the consultation section:

Response received from Local Authority- Environmental Health (Nottingham County Council).

Brief summary of issues raised: Concerns of disturbance to nearby sensitive receptors from odour. Request that odour controls are closely examined for the site, and where appropriate secure improvements to the process to mitigate any risk to local residents.

Reinforced the comments made by UK Health & Security Agency (below)

Summary of actions taken: The odour abatement system at the site has been reviewed and updated as part of the plant refurbishment and a new BAT compliant system installed, ensuring odour emissions from the site are minimised.

Additionally, Improvement Condition (IC5) requiring the operator to provide post commissioning performance testing and evaluation is included in the permit. This shall be completed within three months of the variation notice issued.

Regarding the Odour Management Plan, additional information was received in response to the Schedule 5 Notice. Following assessment, we are satisfied that appropriate measures will be in place in accordance with our technical guidance and have approved the Odour Management Plan.

Response received from UK Health & Security Agency.

Brief summary of issues raised: Bioaerosol monitoring not proposed, considerations to site design and process safety in line with Dangerous Substances and Explosive Atmospheres Regulations (DSEAR), emission point monitoring not specifying specific pollutants, air quality impact of flares not assessed and noted that further updates are required to the Environmental Risk Assessment (ERA).

Summary of actions taken: Regarding bioaerosol monitoring, the proposed carbon filter abatement system provides beneficial reductions in bioaerosols concentrations, and as such, monitoring is not required at this installation.

A Site Specific Bioaerosol Risk Assessment (SSBRA) undertaken and submitted, demonstrates the level of risk as very low and is satisfactory in accordance with our technical guidance. We are therefore satisfied that the risk of bioaerosols to nearby receptors has been mitigated.

Regarding the risk assessment under the Dangerous Substances and Explosive Atmospheres Regulations (DSEAR), the operator has updated DSEAR based on site changes, in order to inform suitable infrastructure and management. Additionally, the report highlighted various recommendations relating to site design and process. In response to a Schedule 5 notice, the recommendations will be addressed to act as mitigation measures.

We are satisfied that the site is compliant with DSEAR and ATEX regulations in accordance with our technical guidance.

Regarding the emissions point monitoring, monitoring of specific pollutants has been set.

Regarding the impacts from emergency flares to air quality: The use of the flares has been assessed against BAT compliant flares use, has been reviewed as outlined in response to a Schedule 5 notice. Unavoidable use of the flares will be recorded in SCADA with reasons captured in the EMS, as set out in the permit, and will be assessed in accordance with our guidance for monitoring enclosed landfill gas flares.

Regarding the Environmental Risk Assessment, the operator has since updated this document and related documents, to remove all references to the withdrawn digestate dewatering-filtrate treatment system and discharge point to surface water to reflect the current proposed changes.

No further responses have been received from the other organisations consulted.