

# Environment Agency permitting decisions

## Variation

We have decided to issue in part the variation for The Old Codford Dairy operated by Codford Biogas Limited. The Standard Rules 2012No11 permit has been varied to a bespoke permit.

The variation number is EPR/NP3132EG/V002. The permit number is EPR/NP3132EG.

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:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

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

## Structure of this document

- Key issues
- Annex 1 the decision checklist
- Annex 2 the consultation and web publicising responses

## Site summary

The facility consists of an anaerobic digestion (AD) plant permitted to accept 100,000 tonnes of biodegradable waste annually including 10 tonnes of animal waste. The plant comprises a waste reception building, a hydrolysis buffer tank, a pasteurisation tank and two primary digesters. The site also includes biogas infrastructure, a combined heat and power plant, a flare stack and a lagoon for the storage of digestate. Odorous air from the waste reception building will be treated by a biofilter odour control unit before being released to atmosphere via a stack.

The feedstock for the AD plant will consist predominately of food waste from both domestic and commercial sources, as well as green waste and category three animal by-products.

The variation applied for included the addition of a gas engine to the installation and a proposal to leave the lagoon uncovered. Either of these proposed changes would mean that the installation will no longer meet the requirements of the standard rules, and we have therefore issued a bespoke permit updated to modern conditions.

## Key issues of the decision

### Lagoon cover

We have decided to refuse the proposal outlined in the variation application to leave the on-site lagoon uncovered. As the facility is an installation under the Environmental Permitting (England and Wales) Regulations 2010 we must exercise our functions to achieve a high level of protection for the environment taken as a whole, by in particular, preventing or, where that is not practicable, reducing emissions into the air, water and land. We also need to ensure compliance with Article 11 of the Industrial Emissions Directive 2010/75/EU which requires the use of best available techniques ('BAT'). BAT requires the use of the most effective and advanced practical techniques to reduce emissions and the impact on the environment as a whole. With regard to digestate lagoons, we consider the following to be BAT:

Digestate must be stored within covered tanks or covered lagoons and should be of a design and capacity fit for purpose.

This definition of BAT is taken from section 7.4 of our draft anaerobic digestion sector guidance note 'How to comply with your environmental permit – additional guidance for anaerobic digestion' reference LIT873, November 2013 which is representative of our current position. The Standard Rules set of conditions for anaerobic digestion also specify a requirement for lagoons to be covered. This is expected as a minimum standard for a higher risk bespoke permit.

It is BAT to cover digestate storage lagoons in order to prevent ingress of rainwater and egress of gas. The addition of rainwater to the digestate would increase the volume for disposal and decrease its quality as a fertiliser. Egress of gas will increase the potential for emissions of odour from the

installation. The operator has not adequately justified the proposal to leave the lagoon uncovered as being BAT.

The operator provided the following points to outline why they do not consider that the lagoon requires a cover:

- The distance to the nearest residential receptor is 1.3km;
- The dilution of the digestate from rainfall will increase the volume by a maximum of 6.7%;
- There will not be sufficient biogas to enable collection in a useable volume;
- There would be a reduced opportunity to agitate the full lagoon; and
- Maintenance and installation requirements would be costly.

We do not consider that these justifications are adequate to justify BAT not being applied in this case. In accordance with the Industrial Emissions Directive, BAT is to minimise or where practicable prevent emissions of odour and to minimise waste. These are operational and process requirements which need to be complied with. We do not consider the location and distance of sensitive receptors to be relevant in this instance.

The requirement to cover the lagoon was specified in the original Standard Rules 2012No11 permit. As part of this application they have applied to operate to reduced standards without justifying how this would demonstrate the use of BAT given they were proposing not to use what is a standard technique within this sector.

## **Waste acceptance**

A waste acceptance procedure submitted with the variation application outlines the following steps:

- Prior to any waste being accepted on site, a waste enquiry form must be completed to ascertain the quality of the waste.
- If the waste is assessed as appropriate for treatment on site it is accepted onto site and inspected on arrival prior to being tipped in the reception hall. Waste will be rejected based on the following criteria:
  - Incorrect or incomplete paperwork
  - Receipt of non-organic waste received
  - If it contains a significant proportion of items that may damage plant and equipment
  - Insufficient storage capacity in reception hall
  - Equipment malfunction on-site which may result in reduced processing capacity and subsequently inadequate storage capacity.

If waste is rejected, a waste consignment rejection record will be completed with copies held on-site and provided to the customer.

We consider that the waste acceptance procedure is adequate in line with Sector Guidance Note EPR S5.06 Guidance on the disposal and recovery of hazardous and non hazardous waste.

Waste code 07 01 08\* was listed without the asterisk denoting it as a hazardous waste within the Standard Rules permit. The code has been

corrected through the variation and is restricted to the following definition 'glycerol waste from bio-diesel manufacture from non-waste vegetable oils only'.

## **Emissions to air from engines**

One additional gas engine is being added to the installation through this variation. The emission parameters submitted by the Operator are based on a worst case scenario of three combined heat and power (CHP) engines running with the maximum emission concentrations. The total number of gas engines will be three following the variation with an aggregated thermal input of approximately 10 megawatts. The use of gas engines to burn the biogas to recover energy from the anaerobic digestion is considered BAT.

The Applicant submitted an environmental impact assessment outlining the predicted process contributions (PCs) at the receptors that could be impacted by the plant.

Once short-term and long-term PCs have been calculated, they are compared with Air Quality Standards (AQS) referred to as "benchmarks" in the H1 Guidance.

PCs are considered Insignificant if:

- the long-term process contribution is less than 1% of the relevant long-term EQS; and
- the short-term process contribution is less than 10% of the relevant short-term EQS.

The long term 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality;
- The threshold provides a substantial safety margin to protect health and the environment.

The short term 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions;
- the proposed threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the Applicant's proposals for the prevention and control of the emission to be BAT. That is because if the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant. However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedences of the relevant AQS are likely. This is done through audit and review of the Applicant's air emissions impact assessment taking background concentrations into account.

The following air impact assessment for human health and habitats has been carried out for the combined combustion emission from the installation by the operator. The predictions were audited using the Environment Agency's Air Quality and Modelling Assessment Unit (AQMAU) screening tool and as a result we agree with the conclusions that the operator has drawn.

**Table 1 - Long term impact assessment (human health)**

Parameter	Air Quality Standard	PC	PC % of AQS	Background	PEC % AQS
<b>Nitrogen dioxide</b>	40 µg/m <sup>3</sup>	3.718 µg/m <sup>3</sup>	9.295	8*	29.29
*background taken from 2011 DEFRA background map					

Table 1 shows that the nitrogen dioxide process contribution (PC) is greater than 1% of the relevant air quality standard (AQS) and therefore cannot be screened out as insignificant. However, when the background is taken into account the predicted environmental concentration (PEC) is 29.29% of the AQS and there is therefore adequate headroom to indicate that an exceedence of the AQS is unlikely in line with our H1 guidance.

There are no long term air quality standards for sulphur dioxide or carbon monoxide for impacts on human health.

**Table 2 – Short term impact assessment (human health)**

Parameter	Air Quality Standard	PC	PC % of AQS	Background*	PEC % AQS
<b>Nitrogen dioxide</b>	200 µg/m <sup>3</sup>	23.275 µg/m <sup>3</sup>	11.638	16**	19.64
<b>Sulphur dioxide (1 hour mean)</b>	350 µg/m <sup>3</sup>	32.525 µg/m <sup>3</sup>	9.293	--	--
<b>Carbon monoxide</b>	10,000 µg/m <sup>3</sup>	130.150 µg/m <sup>3</sup>	1.302	--	--
*where the short term PC is less than 10% of the AQS the emission is considered insignificant and therefore no consideration is given to the background levels.					
**background taken from 2011 DEFRA background map					

Table 2 shows that the maximum short term PC for both sulphur dioxide and carbon monoxide is less than 10% of the relevant AQS and can therefore be screened out as insignificant.

Table 2 shows that the nitrogen dioxide PC is greater than 10% of the relevant AQS and therefore cannot be screened out as insignificant. However, when the background is taken into account the PEC is 19.64% of the AQS

and there is therefore adequate headroom to indicate that an exceedance of the AQS is unlikely in line with our H1 guidance.

### **Habitats**

There are two Special Areas of Conservation (SAC) and one special protection area (SPA) within 10km of the installation. There is one Site of Special Scientific Interest (SSSI) and five local wildlife sites (LWS) within 2km of the installation.

The process contributions from combustion emissions from the three gas engines have been compared to the relevant AQS for ecological receptors. The nearest ecological receptor is Starveall and Stony Down SSSI located approximately 650m to the south east of the installation. Although the impact from the installation does not screen out as insignificant against the long term AQS, the PEC shows that there is adequate headroom to indicate that there will not be an exceedance of the AQS.

**Table 3 – Long term impact assessment (ecological receptors)**

Parameter	Air Quality Standard	PC	PC % of AQS	Background*	PEC % AQS
<b>Nitrogen dioxide</b>	30 µg/m <sup>3</sup>	3.718 µg/m <sup>3</sup>	12.393	8	39.06
<b>Sulphur dioxide (annual mean)</b>	20 µg/m <sup>3</sup>	2.602 µg/m <sup>3</sup>	13.01	2	23.01

\*Background taken from 2011 DEFRA background map

The short term impact assessment shows that the PC is less than 10% of the AQS and can therefore be considered insignificant. No further assessment is required.

**Table 4 - Short term impact assessment (ecological receptors)**

Parameter	Air Quality Standard	PC	PC % of AQS	Background*	PEC % AQS
<b>Nitrogen dioxide</b>	75 µg/m <sup>3</sup>	3.718 µg/m <sup>3</sup>	9.295	--	--

\*where the short term PC is less than 10% of the AQS the emission is considered insignificant and therefore no consideration is given to the background levels.

Nitrogen and acid deposition were predicted for the Starveall and Stony Down SSSI as outlined in tables 5 and 6. Although the deposition did not screen out as insignificant, there is adequate headroom to indicate that the critical loads (Clo) would not be exceeded.

**Table 5 – nitrogen deposition impact assessment (ecological receptors)**

Parameter	Critical load	PC	PC % of AQS	Background	PEC % Clo
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<b>Nitrogen dioxide</b>	15 kgN/ha/yr	0.54 kgN/ha/yr	3.6	1.15	11.27
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**Table 6 – acid deposition impact assessment (ecological receptors)**

Parameter	Critical load	PC	PC % of AQS	Background	PEC % Clo
<b>Nitrogen dioxide</b>	4.856 keq/ha/yr	0.31 keq/ha/yr	6.38	1.9	45.51

We are satisfied that the varied installation will not damage the features of the SSSI. There are a number of Local Wildlife Sites and ancient woodlands within 2km of the installation. These are a greater distance away from the installation than Starveall and Stony Down SSSI and therefore we consider that the environmental impact assessment conclusion can be applied to the other sites. This would be a conservative conclusion as the potential impacts from air are likely to reduce rapidly with distance from the installation.

The River Avon SAC is the closest European site at 2.5km from the installation with Salisbury Plain SAC and SPA at approximately 4.3km from the installation. The short term PC will be insignificant at both of these sites based on the conclusions reached for Starveall and Stony Down. The long term PC is likely to have fallen significantly from the level calculated at the SSSI within 2.5km of the installation.

We used the Air Quality Modelling and Assessment Unit (AQMAU) screening tool version 5.1 to verify this conclusion. The results are outlined in Table 7 below. The PC is marginally over the 1% screening threshold at 1.1% of the AQS. Although the PC did not screen out as insignificant, there is adequate headroom to indicate that the AQS would not be exceeded. We can therefore conclude that there will be no likely significant effect on either European site.

**Table 7 – Long term impact assessment (River Avon SAC)**

Parameter	Air Quality Standard	PC	PC % of AQS	Background	PEC % AQS
<b>Nitrogen dioxide</b>	30 µg/m <sup>3</sup>	0.33 µg/m <sup>3</sup>	1.1	8	27.8

## Odour

### ***Odour impact assessment***

The applicant submitted an assessment of the potential impact of odour from the AD plant which included detailed modelling. The potential odour sources were identified as follows:

- Reception of feedstock
- Storage and handling of feedstock
- Pasteurisation of feedstock
- Anaerobic digestion
- Storage and handling of digestate
- Gas engine stacks

- Biofilter

The nearest residential receptor is 1.3km to the west of the installation.

### ***Odour management plan***

There will be no increase in odour emissions as a result of this variation, and consequently no increase in environmental risk.

The odour abatement system has been designed to maintain the reception building under negative pressure to minimise the release of odorous air. Smoke tests are carried out periodically to test this. The air extraction system from the main waste reception building is a 20,000m<sup>3</sup>/hour fan which ensures a minimum of two air changes per hour. The reception hall door is to be kept closed until the in-fed conveyors have been stopped (at the end of their cycle).

Air is transferred from the waste reception building to the odour abatement system. The biofilter media is coconut coir and wood chip. The filter media is inspected and changed approximately every 3 years.

A maximum of 2000 tonnes of solid waste are stored in the reception building prior to processing. All waste feedstock material is stored for typically less than 24 hours. Waste will not be received into the reception building if there is a backlog of waste waiting to be processed and there is the possibility that the new waste cannot be processed within the 5 day target timeframe. The most odorous wastes will be processed quickly as a priority. Waste is managed under a 'first in first out' principle.

Contingency measures for diverting feedstock are outlined fully in the accident management plan.

The anaerobic digestion process is undertaken within sealed tanks and managed by automated controls via a SCADA (Supervisory Control and Data Acquisition) system. This can indicate whether a leak has occurred via a drop in pressure and monitor the quality of the liquid digestate and biogas to establish the efficiency of the system.

We have assessed the applicants Odour Management Plan (OMP) and we approve the OMP in its current format but set out below the way in which we consider it to be deficient and which additional appropriate measure the operator needs to take.

We consider that it is BAT for the lagoon on site to be covered which will minimise odour emissions. The lagoon was required to be covered under the previous standard rules permit for the site. The bespoke permit issued through variation EPR/NP3132EG/V002 outlines the requirement for the lagoon to be covered within the activities table S1.1.

### **Accident management plan**

An accident management plan was submitted as part of the application EPR/NP3132EG/V002 outlining control and contingency measures for the permitted activities for the following incident categories:



- Failure of containment
- Explosions
- Overfilling
- Fire
- Flooding
- Failure of plant and/or equipment
- Overcapacity
- Failure of mains services
- Vandalism
- Vehicle collisions

We consider that the measures specified are appropriate for the activity in line with our Sector Guidance Note S5.06 guidance for the treatment and disposal of hazardous and non hazardous waste.

## Annex 1: decision checklist

This document should be read in conjunction with the Duly Making checklist, the application and supporting information and permit/ notice.

Aspect considered	Justification / Detail	Criteria met
		Yes
<b>Consultation</b>		
Scope of consultation	The consultation requirements were identified and implemented. The decision was taken in accordance with Regulatory Guidance Note 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements.	✓
Responses to consultation and web publicising	The web publicising and consultation responses (Annex 2) were taken into account in the decision.  The decision was taken in accordance with our guidance.	✓
<b>Operator</b>		
Control of the facility	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 EPR Regulatory Guidance Note 1 Understanding the meaning of operator.	✓
<b>European Directives</b>		
Applicable directives	All applicable European directives have been considered in the determination of the application.	✓
<b>The site</b>		
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. The installation boundary is not changing as a result of the variation.  A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.	✓
Biodiversity, Heritage, Landscape and Nature Conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.  A full assessment of the application and its potential to affect the habitats/sites has been carried out as part of the permitting process. Please see key issues section for further information.  We have not formally consulted on the application. An Appendix 11 dated 29/07/15 was sent to Natural England for information only. The decision was taken in accordance with our guidance.	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
<b>Environmental Risk Assessment and operating techniques</b>		
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>The operator's risk assessment is satisfactory. Please see key issues section for further information.</p>	✓
Operating techniques	<p>We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. See key issues section above for further information.</p> <p>The proposed techniques/ emission levels for priorities for control are in line with the benchmark levels contained in the Sector Guidance Note S5.06 guidance for the recovery and disposal of hazardous and non-hazardous waste and we consider them to represent appropriate techniques for the facility. The permit conditions ensure compliance with relevant BAT Reference Documents (BREFs).</p> <p>We consider that the emission limits for the gas engines and flare included in the installation permit reflect the best available techniques for the sector.</p>	✓
<b>The permit conditions</b>		
Updating permit conditions during consolidation.	<p>We have updated previous permit conditions to those in the new generic permit template as part of permit consolidation.</p> <p>The operator has agreed that the new conditions are acceptable.</p>	✓
Waste types	<p>We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.</p> <p>We are satisfied that the operator can accept these wastes because these wastes are listed in the Standard Rules permit. No additional wastes are being accepted at the site as a result of the variation to a bespoke permit.</p> <p>We made these decisions with respect to waste types in accordance with the Sector Guidance Note S5.06 guidance for the recovery and disposal of hazardous and non-hazardous waste and standard rules set SR2012 No 11.</p> <p>Following the most recent consultation on our standard rules permit for anaerobic digestion facilities, compost</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	leachate is no longer designated as EWC 19 05 99. It is now designated as 16 10 02.	
Incorporating the application	<p>We have specified that the applicant must operate the permit in accordance with descriptions in the application, including all additional information received as part of the determination process.</p> <p>These descriptions are specified in the Operating Techniques table in the permit.</p>	✓
Emission limits	<p>We have decided that emission limits should be set for the parameters listed in the permit.</p> <p>Emission limit values (ELVs) have been set for the new gas engine for nitrogen dioxide, carbon monoxide, sulphur dioxide and total volatile organic compounds (VOCs). The ELVs which were specified in the standard rules permit for the existing gas engines and flare have been transposed into the bespoke permit. These ELVs are based on those specified in the Landfill Guidance Technical Guidance Note (LFTGN) for landfill gas engines LFTGN 08 and LFTGN 05 for landfill flares.</p> <p>It is considered that the ELVs/ equivalent parameters or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.</p>	✓
Monitoring	<p>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.</p> <p>We made these decisions in accordance with the waste treatment and storage Sector Guidance Note IPPC S5.06, the Landfill Guidance Technical Guidance Note for landfill gas engines LFTGN 08 and LFTGN 05 for landfill flares.</p> <p>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.</p>	✓
Reporting	<p>We have specified reporting as specified in Schedule 4 for the following reasons;</p> <p>i) to ensure emissions are within ELVs and equivalent parameters,</p> <p>ii) that the installation is being operated in an efficient manner.</p>	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
	We made these decisions in accordance with the Sector Guidance Note IPPC S5.06 Guidance on the disposal and recovery of hazardous and non hazardous waste.	
<b>Operator Competence</b>		
Environment management system	There is no known reason to consider that the operator will not have the management systems to enable it to comply with the permit conditions. The decision was taken in accordance with Regulatory Guidance Note 5 on Operator Competence.	✓
Technical competence	Technical competency is required for activities permitted. The operator is a member of an agreed scheme.	✓
Financial provision	There is no known reason to consider that the operator will not be financially able to comply with the permit conditions. The decision was taken in accordance with Regulatory Guidance Note 5 on Operator Competence.	✓

## Annex 2: Consultation and web publicising responses

Summary of responses to consultation and web publication and the way in which we have taken these into account in the determination process.

Response received from
The Health and Safety Executive
Brief summary of issues raised
No response received
Summary of actions taken or show how this has been covered
No action required

Response received from
The Food Standards Agency
Brief summary of issues raised
No response received
Summary of actions taken or show how this has been covered
No action required

Response received on 08/06/2015 from
Public Health England
Brief summary of issues raised
Provided that the installation complies with the regulatory requirements and the regulator is satisfied that the techniques proposed by the applicant represent best available techniques (BAT), there is unlikely to be any significant adverse impact upon public health.
Summary of actions taken or show how this has been covered
No action required

Response received from
Director of Public Health
Brief summary of issues raised
No response received
Summary of actions taken or show how this has been covered
No action required

Response received from
Environmental Health – Wiltshire County Council
Brief summary of issues raised
No response received
Summary of actions taken or show how this has been covered
No action required

The application was advertised on our website between 19 May 2015 and 18 June 2015. No comments were received.