Permitting decisions

Bespoke permit

We have decided to grant the permit for Thornfield 001 Limited operated by Thornfield 001 Limited

The permit number is EPR/VP3506PE.

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 checklist to show how all 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. The introductory note summarises what the permit covers.

Key issues of the decision

Air Quality

The application includes two Combined Heat and Power (CHP) plants and a boiler. This means they are subject to Schedule 25A Medium Combustion Plant and Schedule B Specified Generator of the EP regulations. In line with the Environment Agency's guidance (https://www.gov.uk/guidance/specified-generators-dispersion-modelling-assessment and https://www.gov.uk/guidance/medium-combustion-plant-apply-for-an-environmental-permit#apply-for-a-bespoke-permit), we require applicants to submit detailed air dispersion modelling and impact assessment to assess the predicted impacts on both human receptors (for example dwellings, work places and parks) and ecological sites.

A methodology for risk assessment of point source emissions to air is set out in our guidance *Air emissions risk assessment for your environmental permit* and has the following steps:

- Describe emissions and receptors
- Calculate process contributions
- Screen out insignificant emissions that do not warrant further investigation using the Environment Agency's screening tool (specific to assessing impacts from Specified Generators (SG))
- Decide if detailed air modelling is needed

- Assess emissions against relevant standards
- Summarise the effects of emissions.

We use this methodology to assess the impacts on air quality in the determination of applications.

The methodology uses a concept of "process contribution (PC)", which is the estimated concentration of emitted substances after dispersion into the receiving environmental media at the point where the magnitude of the concentration is greatest. The methodology provides a simple method of calculating PC, primarily for screening purposes, and for estimating process contributions where environmental consequences are relatively low. It is based on using dispersion factors. These factors assume worst case dispersion conditions with no allowance made for thermal or momentum plume rise and so the process contributions calculated are likely to be an overestimate of the actual maximum concentrations. More accurate calculation of process contributions can be achieved by mathematical dispersion models, which take into account relevant parameters of the release and surrounding conditions, including local meteorology.

Air dispersion modelling enables the PC to be predicted at any environmental receptor that might be impacted by the emissions from a plant. Once short-term and long-term PCs have been calculated in this way, they are compared with Environmental Standards (ES).

PCs are considered insignificant if:

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

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; and
- 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; and
- the 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 acceptable. 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 exceedances of the relevant ES are likely. This is done through detailed audit and review of the applicant's air dispersion modelling, taking background concentrations and modelling uncertainties into account.

Where the PC is greater than these thresholds, the assessment must continue to determine the impact by considering the predicted environmental concentration (PEC). The PEC is the combination of the PC substance to air and the background concentration of the substance which is already present in the environment.

The PECs can be considered 'not significant' if the assessment has shown that both the following apply:

- proposed emissions comply with associated emission levels (AELs) or the equivalent requirements where there is no AEL; and
- the resulting PECs won't exceed 100% of the environmental standards.

The Air Quality Assessment Supplied

(*source: THORNFIELD 001 LIMITED, BARNES FARM ANAEROBIC DIGESTION FACILITY, AIR QUALITY ASSESSMENT, final version, June 2019*).

The air quality assessment considered the potential effect of emissions from two combined heat and power (CHP) units and a boiler. Concentrations of nitrogen dioxide and sulphur dioxide were considered. The

assessment used the AERMOD Lakes Environmental version 9.6.5 atmospheric model. The model used a conservative approach, assuming the CHPs and boiler run continuously and using the worst meteorological data over the last 5 years. The predicted pollutant concentrations were assessed against the relevant air quality objectives.

a) Human receptors

Table 1 below summarises the impacts for nitrogen dioxide at the most sensitive human receptor.

Table 1 – Predicted impacts at most sensitive human receptor (receptor 10)						
Pollutant	**Environmental standard**	**Background**	**Process Contribution (PC)**		**Predicted Environmental Concentration (PEC)**	
Unit	**µg/m^3**	**µg/m^3**	**µg/m^3**	**% of ES**	**µg/m^3**	**PEC % of ES**
NO_x annual mean	40	4.85	3.06	7.64	7.91	19.77
NO_x hourly mean	200	9.70	39.22	19.61	48.92	24.46

Table 2 below summarises the impact of sulphur dioxide on the most sensitive human receptor.

Table 2 – Predicted impacts at most sensitive human receptor (receptor 10)						
Pollutant	**Environmental standard**	**Background**	**Process Contribution (PC)**		**Predicted Environmental Concentration (PEC)**	
Unit	**µg/m^3**	**µg/m^3**	**µg/m^3**	**% of ES**	**µg/m^3**	**PEC % of ES**
SO_2 24-hour Mean	125	5.08	6.68	5.34	11.76	9.41
SO_2 1-hour Mean	350	5.08	15.59	4.45	20.67	5.90
SO_2 15-minute Mean	266	5.08	24.37	9.16	29.45	11.07

For the most sensitive human receptors, the maximum modelled PC and PECs have been compared against the relevant air quality objectives, to determine the risk of exceedance.

The predicted long-term NO_2 process contributions (PCs) were 'not insignificant' at most identified sensitive human health receptors but PEC did not exceed the relevant Environmental Standard. The maximum long-term NO_2 PC was 7.64% at receptor 10 and PEC is 19.77%

The predicted short-term NO_2 process contributions (PCs) were 'not insignificant' at two identified sensitive human health (receptor 9 and receptor 10) but PEC did not exceed the relevant Environmental Standard. The maximum short-term NO_2 PC is 19.61% at receptor 10 and PEC is 24.46%.

The results confirm there will be no exceedances of the relevant air quality objectives for the human receptors considered. Based on this, it is therefore considered that the proposed exhaust heights for the CHP units and boiler are sufficient to ensure the adequate dispersion of NO_2 and SO_2, and therefore further mitigation will not be required. The emissions are unlikely to be a significant contributor to or cause an exceedance of an Environmental Standards.

b) Ecological receptors

No SSSIs or European designated sites were within the screening distance criteria and so were not considered further in the assessment.

We agree that NOx or SO_2 are unlikely to be a significant contributor to, or cause and exceedance of, Environmental Standards. There are no European or SSSI designated sites within the screening distance criteria, and no impact is expected on any European site or damage to any SSSI.

Decision checklist

Aspect considered	Decision
Receipt of application	
Confidential information	A claim for commercial or industrial confidentiality has not been made.
Identifying confidential information	We have not identified information provided as part of the application that we consider to be confidential.
Consultation	
Consultation	The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement. The application was publicised on the GOV.UK website. We consulted the following organisations: • Telford & Wrekin Council Local Planning Authority • Telford & Wrekin Council Environmental Health • Health and Safety Executive • Telford & Wrekin Council Department of Public Health • Public Health England The comments and our responses are summarised in the consultation section.
Operator	
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 our guidance on legal operator for environmental permits.
The facility	
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 RGN 2 '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	
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 plan is included in the permit.

Aspect considered	Decision
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.
Biodiversity, heritage, landscape and nature conservation	The application is not within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.
Environmental risk assessment	
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. This included an air quality assessment for the 2 CHPs and boiler to ensure environmental standards were not exceeded. See key issues section above. The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may be categorised as environmentally insignificant/not significant. The applicant's assessment of predicted impacts at sensitive receptors is based on the operating hours of 8,640 per annum as proposed by the applicant and included in the modelling. We have included these operating hours in the permit (table S1.1) as the modelling shows that, at these operating hours, emissions are environmentally not significant. A bioaerosol quantitative risk assessment was not required because this is a wet AD process, and materials will be enclosed in pipework and tanks, so bioaerosal release is not anticipated as a risk.
Operating techniques	
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. As a new bespoke installation application, the installation has to comply with relevant *BAT conclusions for waste treatment*, issued in August 2018. The relevant BAT conclusions for the site are listed below: • General BAT conclusions 1,2,3,4,5,8,10,11,12,13,14,15,16,17,18,19,21 and 23 • General BAT conclusions for the biological treatment of waste 33,34 and 35 • BAT conclusions for the anaerobic treatment of waste 38 The applicant provided a BAT assessment against relevant criteria against which they were audited. We determined that they were compliant with all the applicable BAT conclusions. A record has been kept of the assessment. The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.
Odour management	We have reviewed the odour management plan in accordance with our

Aspect considered	Decision
	guidance on odour management. We consider that the odour management plan is satisfactory.
Noise 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 sufficient to be able to issue the permit but have included an improvement condition (IP3) to assess real noise data once the site is operational, to ensure the modelling assumptions on noise emitted were representative.
Permit conditions	
Use of conditions other than those from the template	Based on the information in the application, we consider that we do not need to impose conditions other than those in our permit template.
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 • the environmental risk assessment is acceptable
Improvement programme	Based on the information in the application, we consider that we need to impose an improvement programme outlined below: IP1 – monitor air emissions to verify assumptions made in the application to include the biogas upgrade plant; and IP2 – produce an emissions impact assessment based on the above and submit a report to the Environment Agency IP3 – to undertake a noise assessment during normal operating conditions and submit a report to the Environment Agency IP4 – to review the design, construction and integrity of the secondary containment and submit a report to the Environment Agency.
Emission limits	ELVs have been set for the following substances: NOx, SO_2, CO and VOCs. This is in line with our guidance on AD plants – how to comply for CO and VOCs and MCP regulation ELV limits for NOx and SO_2. Please refer to key issue section above.
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 imposed in order for the operator to demonstrate compliance with the emission limits specified in the permit. The operator will carry out monitoring in accordance with the relevant MCERTS methods.

Aspect considered	Decision
.Reporting	We have specified reporting in the permit. The reporting requirements have been imposed in order for the Environment Agency to audit compliance with the emission limits set in the permit.
Operator competence	
Management system	There is no known 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 an agreed scheme. We are satisfied that the operator is technically competent.
Relevant convictions	The Case Management System been checked 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	
Section 108 Deregulation Act 2015 – 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.