

# Permitting decisions

## Variation

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We have decided to grant the variation for East Hortonwood Abattoir operated by Pickstock Telford Limited. The variation number is QP3233NQ/V003.

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 and the variation notice. The introductory note summarises what the variation covers.

## Key issues of the decision

The following activities are added to the existing abattoir permit:

- an anaerobic digester (AD) plant;
- a combined heat and power plant (CHP)
- an emergency flare
- a dissolved air flotation plant for the treatment of existing effluent prior to discharge to sewer.

### The Anaerobic Digestion Plant

The AD plant only treats wastes from the on-site abattoir. Therefore there is no need for a reception hall and there are no deliveries of material from external locations. Consequently, wheel and vehicle wash facilities are not needed for the AD plant. All materials are transferred directly into the tanks and vessels. The whole of the AD plant, including the intake vessels, is contained within a single bunded area. The bunded area has been cast as a monolithic base with the sides re-barred to the base to give the required mechanical strength and leak integrity. The bund is confirmed as providing >25% of the total contained tank volume. Two drain

collection sumps are located in the bund from where any collected effluent is pumped to the effluent system. Inspection of the bund and the sumps is included in the site's protection and monitoring programme (SPMP).

Biogas is collected in the headspace of each fermenter unit. There is also scope for it to collect in the headspace of the product storage vessel. The BAT requirements state that the biogas should be collected from the headspace of all vessels. From the collection points the biogas is fed via the gas cleaning unit to the CHP plant. The biogas flowrate to the CHP unit is continuously measured and recorded. The methane, oxygen and H<sub>2</sub>S levels are also monitored and recorded. In accordance with site safety practices, the DSEAR assessment and BAT requirements all equipment in contact with biogas is ATEX certified.

All headspaces have continuous pressure monitoring and recording. Pressure relief is fitted to each vessel with the relief vent passing to atmosphere. The pressure relief vents are set such that discharge will only occur in an emergency situation when the vessel integrity is in danger of being compromised. The pressure relief initiates automatically and alarms on the control panel. Feed to the fermenters is stopped until the operator resets the alarm condition following an inspection. Instruments and relief systems fitted to the biogas storage units are installed with an isolation valve to allow for safe maintenance.

The flare stack is designed with a flashback arrestor to prevent unsafe flashbacks.

No subsurface tanks for the AD facility

#### Emission Limit Values (ELV) for stack emissions from the CHP engine

We have set ELV for emissions to air from the CHP engine stack for the following parameter: oxides of nitrogen (NO<sub>x</sub>), sulphur dioxide (SO<sub>2</sub>), carbon monoxide (CO) and total volatile organic compounds (VOCs). The ELV were set in accordance with our current general permit template for AD facilities and were based on LFTGN08: Guidance for monitoring landfill gas engine emissions.

The CHP engine has a rated thermal input of 1223 KWth and will be affected by the Medium Combustion Plant Directive (MCPD). As the engine is operated as a directly associated activity to a Chapter II activity under the Industrial Emissions Directive, it is classed as an 'excluded generator'. It is thus considered to be a medium combustion plant rather than a specified generator. The applicant has confirmed that the plant will be operational before 20 December 2018. Therefore, the plant is considered an existing plant for the purpose of MCPD. The ELV for existing medium combustion plants with a rated thermal input of less than or equal to 5MW specified in Annex II of the MCPD will not apply until 1 January 2030 and have thus not been considered for the purpose of this permit application.

The anaerobic digestion plant (AD) generates point source emissions to air from the CHP and odour abatement unit. The operator submitted a risk assessment using our H1 screening tool.

We checked the emissions from the AD plant for nitrogen dioxide, sulphur dioxide, carbon monoxide and benzene (representing VOCs) using our H1 screening tool and the Air Quality Management and Assessment Unit (AQMAU) screening tool and all of the emissions were screened out as not significant.

The details used to check the H1 assessment from the operators report against the long term and short term environmental assessment levels (EALs) based on operating 80% of the time (80% operating mode) are as follows:

			Long term impacts			Short term impacts		
Substance	Long term EAL µg/m <sup>3</sup>	Short term EAL µg/m <sup>3</sup>	Process Contribution (PC) µg/m <sup>3</sup>	%PC of EAL	>1% EAL	PC µg/m <sup>3</sup>	%PC of EAL	>10% EAL
Nitrogen Dioxide	40	200	4.6	11.5	Yes	30	15	Yes
Sulphur dioxide	-	125	0.405	-	-	11.9	9.05	No

(24 hour mean)								
Carbon monoxide	-	10,000	70.8	-	-	1662	16.7	No
Benzene	5	195	0.0174	0.347	No	0.510	0.262	No

Process contributions are considered Insignificant if:

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

From the tables above all of the emissions can be screened out as insignificant in that the process contribution is < 1% of the long term EQS/EAL and <10% of the short term EAQ/EAL, with the exception of nitrogen dioxide.

As the long term and short term impacts nitrogen dioxide did not screen out as insignificant, the results were then assessed using the Air Quality Management and Assessment Unit (AQMAU) screening tool which also considers the predicted environmental concentrations (PEC) which is the process contribution plus the background concentration, locations and heights of buildings onsite (in this case the abattoir building and the AD facility tanks) and all of the potential receptors. The results of this assessment is that the CHP can be screened out as not a significant risk to the receptors for nitrogen dioxide. The AQMAU screening tool was based on a 0.11g/s emission rate assuming the AD plant is operating 100% of the time (therefore conservative). The results were that the emissions were mostly low and medium environmental risk. Therefore the emissions screened out and no detailed modelling was required. The figure for benzene were later clarified to have an emission rate of 0.001g/s and this was assessed using the AQMAU screening tool and results were still screened out as low risk.

Also from the H1 screening tool - the nitrogen dioxide emissions cannot be considered to have the potential to give rise to significant pollution in that the predicted environmental concentration is less than 70% of the long term EQS/EAL or 20% of the short term EQS/EAL headroom.

	<b>Long term</b>	<b>Short term</b>
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Nitrogen dioxide	PC (µg/m <sup>3</sup> )	Air background concentration	PEC (µg/m <sup>3</sup> )	%PEC of EAL	%PEC of EAL >70%	PC (µg/m <sup>3</sup> )	% PC of headroom (EAL – Background)	%PC of headroom >=20
	4.6	11.8	16.4	41	No	30	17	No

Regarding odour, the operator also assessed emissions from the odour abatement system using our H1 screening tool using the details below:

Substance	Long term impacts			Short term impacts				
	Long term EAL µg/m <sup>3</sup>	Short term EAL µg/m <sup>3</sup>	Process Contribution (PC) µg/m <sup>3</sup>	%PC of EAL	>1% EAL	PC µg/m <sup>3</sup>	%PC of EAL	>10% EAL
Hydrogen sulphate	140	150	0.00106	0.000751	No	0.0327	0.0218	No
Dimethyl sulphate	0.521	15.7	0.00500	0.962	No	0.156	0.998	No
Ammonia	180	2500	0.1001	0.0556	No	3.12	0.125	No

The emissions all screened out as insignificant using the H1 tool. The emissions were checked against the AQMAU screening tool using an odour emission concentration of 1000 OUE/m<sup>3</sup> and the predictions are below the odour benchmark at all receptor locations.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment all emissions may be categorised as environmentally insignificant. Therefore we consider the Applicant's proposals for preventing and minimising the emissions to air to be BAT for the Installation

### Odour management

The Odour Management Plan (OMP) covers odour emissions from the AD plant, the combined heat and power plant (CHP), the emergency flare and the dissolved air flocculation (DAF). The majority of odorous emissions are from the AD plant as follows (Environmental Permit Application – Installations information ref: P112AD-R01-F2, dated Oct 17):

- The mixer unit can release odours when it is open to receive input material. The estimated 30 tonnes/day throughput will require 20-30 “openings” per day, each of approximately 2 minutes duration.
- The roto-cut and pre-mix vessels can release odours during materials transfer via displacement.
- The main digesters are closed units with gas collection and storage. For safety reasons each is fitted with pressure relief valves. The relief valves are set solely to provide emergency venting to prevent over pressurisation of the tanks that could lead to a catastrophic rupture.
- During operation the pasteurisation tanks are heated and held at the pasteurisation temperature. During filling there will be some displacement of odorous air and there will be some small release of odorous air from the vents during the heating phase.
- Product is pumped to storage from the pasteurisers. The same volume of displaced air will need to be treated and a similar quantity can be assumed to require treatment due to diurnal heating effects in the storage tank.

In total 290m<sup>3</sup>/day has been identified as “forced” air requiring abatement. In addition extraction is required from the mixer unit to cater for the vessel opening at 300m<sup>3</sup>/hr. Allowing some design contingency and to cater for future developments a 500m<sup>3</sup>/hr odorous air flow has been used to design the abatement system.

The odour abatement system is a multi-stage system comprising of the following:

- An acid liquid scrubber tower for the treatment of ammonia / amine;

- Ferrosorp media for the treatment of sulphur compounds
- UV and active carbon for the treatment of VOCs.

As detailed in the air emissions section above - the emissions from the odour abatement unit were checked against the AQMAU screening tool using an odour emission concentration of 1000 OU<sub>E</sub>/m<sup>3</sup> and the predictions are below the odour benchmark at all receptor locations.

### **Odour management plan**

A detailed and robust odour management plan has been submitted and approved and we consider that the applicant's proposals represent the appropriate measures to prevent/ minimise odour from the permitted activities.

The OMP does contains details of the waste types and quantities in table 2 of the OMP (EM 01-007), there are no EWC codes however these are included in table S2.2 of the permit.

### **Noise assessment**

A noise assessment was submitted with the application, entitled, 'Proposed Anaerobic Digester, Hortonwood, Telford', dated 30 September 2014 ref: CL/7903/0622/03).

An updated noise assessment for the proposed new impact associated with this application in line with the updated document; BS4142:2014 was required as part of the Schedule 5 Notice.

The consultant has completed a BS4142 assessment, and based on the results conclude low impact at sensitive receptors. The noise assessment was assessed by our Air Quality Management and Assessment Unit (AQMAU). We considered telehandler and forklift movements associated with the transport and loading of feedstock into the AD plant, which were omitted from the consultant's assessment. AQMAU's results indicated higher rating levels at receptors compared with the applicant, but we agree that the risk of impact is low.

### **Dissolved air flotation (DAF) plant**

From P112AD-R01-F2 - Effluent from the existing effluent system is pumped into a 400m<sup>3</sup> feed balance tank. From the balance tank the effluent is pumped into the inlet of the DAF unit. The effluent then flows into the main body of the DAF unit via an inlet overflow weir. Ferric sulphate is dosed into the inlet effluent to ensure effective flocculation.

A portion of the clarified effluent water leaving the DAF plant is pumped into a small pressure vessel into which compressed air is introduced. The air-saturated water stream is recycled to the front of the float tank and flows through a pressure reduction valve just as it enters the front of the float tank, which results in the air being released in the form of tiny bubbles. The bubbles adhere to the suspended matter, causing the suspended matter to float to the surface and form a froth layer which is then removed by a skimmer. The froth-free water exits the float tank as the clarified effluent from the DAF unit.

The DAF sludge skimmed from the top of the DAF plant collects in the sludge outlet trough. This DF sludge is still capable of being pumped and is pumped to the lorry wash sump to be used as feedstock in the AD Plant.

### **Emissions to surface water and sewer**

The existing site which covers the abattoir is situated on an impermeable surface, where the effluent is treated in the effluent treatment system and clean uncontaminated surface runoff discharges to surface water sewer then Crow Brook.

For the remainder of the site which covers the dissolved air flotation (DAF) plant for effluent treatment, the CHP and emergency flare – clean uncontaminated surface runoff discharges to surface water sewer then Crow Brook.

The AD plant is situated on an impermeable surface with a sealed drainage system. The whole of the AD plant, including the intake vessels, is contained within a single bunded area. The bunded area has been cast as a monolithic base with the sides re-barred to the base to give the required mechanical strength and leak integrity. The bund is confirmed as providing >25% of the total contained tank volume. Two drain collection sumps are located in the bund from where any collected effluent is pumped to the effluent system.

There is an existing emission of effluent to sewer from the on-site abattoir, however the variation seeks to add a dissolved air floatation (DAF) plant prior to the discharge point which is a physico-chemical treatment process which will treat the water further and so will have less impact on the environment. The source of waste water treated in the DAF plant should not change significantly (some additional wash water from the AD plant and vehicles and scrubber). Therefore it was agreed that no further risk assessment for emissions to sewer was required as part of this application. The the resulting water treatment sludge will be disposed of in the Anaerobic digester (as detailed in report ref: P112AD-R01-F1). This is not detailed in the waste pre-acceptance, acceptance and storage procedures, however is included in the permitted waste table S2.2.

## Decision checklist

Aspect considered	Decision
<b>Receipt of application</b>	
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.
<b>Consultation</b>	
Consultation	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website.</p> <p>We consulted the following organisations:</p> <p>Public Health England</p> <p>Director of Public Health</p> <p>Local Authority Environmental Protection Department</p> <p>Animal and Plant Health Agency (APHA)</p> <p>The comments and our responses are summarised in the <a href="#">consultation section</a>.</p>
<b>The facility</b>	
The regulated facility	<p>We considered the extent and nature of the facilities 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', guidance on waste recovery plans and permits.</p> <p>The extent of the facilities are defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.</p>
<b>The site</b>	
Extent of the site of the facility	The operator has provided a plan (ref: 1523 sit 02, rev3) which we consider is satisfactory, showing the extent of the site of the facility. The plan is included in the permit.
Site condition report	A site condition report was submitted as part of the application, however as there was no increase in the installation boundary a revised site condition report was not required. However the operator has been advised to keep the site condition report updated throughout the operational phase of the permit to reflect any variations to the permit.

Aspect considered	Decision
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process.</p> <p>We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>We have not consulted Natural England on the application – the HRA1 form was sent to Natural England for information only. The decision was taken in accordance with our guidance.</p>
<b>Environmental risk assessment</b>	
Environmental risk	<p>We have reviewed the operator's assessment of the environmental risk from the facility.</p> <p>There is no biofilter at the site as part of the AD facility. Therefore there is no requirement for a bioaerosols risk assessment, permit conditions or monitoring requirements.</p> <p>There is no assessment for emissions to sewer as the emissions to sewer will be improved by the installation of a dissolved air flotation (DAF) plant</p> <p>The operator's risk assessment is satisfactory. See <a href="#">key issues</a> section for air quality assessment, odour assessment, noise assessment and surface water risk emissions.</p>
<b>Operating techniques</b>	
General operating techniques	<p>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.</p> <p>The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.</p>
Operating techniques for emissions that screen out as insignificant	<p>Emissions of nitrogen dioxide, sulphur dioxide, carbon monoxide, VOCs (as benzene), hydrogen sulphide, dimethyl sulphide and ammonia in emissions to air have been screened out as insignificant, and so we agree that the applicant's proposed techniques are BAT for the installation.</p> <p>We consider that the emission limits included in the installation permit reflect the BAT for the sector.</p>
Odour management	<p>We have reviewed the odour management plan in accordance with our guidance on odour management.</p> <p>We consider that the odour management plan is satisfactory. See <a href="#">key issues</a> section.</p>



Aspect considered	Decision
<b>Permit conditions</b>	
Updating permit conditions during consolidation	We have updated permit conditions to those in the current generic permit template as part of permit consolidation. The conditions will provide the same level of protection as those in the previous permit(s).
Raw material	See raw materials inventory ref EM 07 004 (part of Environmental Management System EMS)
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 for the following reasons:</p> <ul style="list-style-type: none"> <li>• they are suitable for the proposed activities</li> <li>• the proposed infrastructure is appropriate; and</li> <li>• the environmental risk assessment is acceptable.</li> </ul> <p>We made these decisions with respect to waste types in accordance with the description specified in the revised Standard Rules permit templates.</p>
Pre-operational conditions	There are no pre-operational conditions in the permit as pre-operational condition 1 has been complied with and has therefore been removed from the permit.
Emission limits	Emission limits have been added to the permit for the combined heat and power plant (CHP1) and the emergency flare stack.
Monitoring	<p>We have decided that monitoring should be added for the following parameters, using the methods detailed and to the frequencies specified:</p> <p>Oxides of nitrogen, carbon monoxide, sulphur dioxide and total VOCs for the CHP and oxides of nitrogen, carbon monoxide and total VOCs for the emergency flare in accordance with table S3.1.</p> <p>And process monitoring requirements in accordance with table S3.4.</p>
Reporting	<p>We have added reporting in the permit for the following parameters:</p> <p>Emissions to air and annual production/treatment associated and performance parameters associated with the AD.</p>
<b>Operator competence</b>	
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.
Technical competence	Technical competence is not required as the site is not accepting waste from off-site.

<b>Aspect considered</b>	<b>Decision</b>
Relevant convictions	<p>The Case Management System and National Enforcement Database have been checked to ensure that all relevant convictions have been declared.</p> <p>No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.</p>
Financial competence	<p>There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.</p>
<b>Growth Duty</b>	
Section 108 Deregulation Act 2015 – Growth duty	<p>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.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“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.”</p> <p>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.</p> <p>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.</p>

## Consultation

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

<b>Response received from Public Health England (PHE)</b>
Name the organisation
<b>Brief summary of issues raised</b>
<p>We recommend that any Environmental Permit issued for this site should contain conditions to ensure that the following potential emissions do not impact upon public health: odour and emissions of hydrogen sulphide and ammonia.</p> <p>Based solely on the information contained in the application provided, PHE has no significant concerns regarding risk to health of the local population from this proposed activity, providing that the applicant takes all appropriate measures to prevent or control pollution, in accordance with the relevant sector technical guidance or industry best practice.</p>
<b>Summary of actions taken or show how this has been covered</b>
<p>A robust odour management plan has been submitted as part of the application. Emissions to air from hydrogen sulphide and ammonia from the odour abatement system of the AD plant have been assessed and there is no impact to the environment.</p> <p>The applicant has taken into consideration the relevant sector guidance, 'How to comply with your environmental permit: Additional guidance for Anaerobic digestion'.</p>