Environment Agency permitting decisions

Bespoke permit

We have decided to grant the permit for Roth Hill Lane AD operated by J E Hartley Limited.

The permit number is EPR/UP3434WA

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

Key issues of the decision

Emissions to Air (CHP)

The CHP will be used in preference to the flare in order to maximise gas utilisation, the flare is considered to be a directly associated activity and will provide a standby role only being used when the engine is non-operational.

The operator undertook a basic H1 risk assessment (Tool) for emissions to air from the CHP stack, the emission values entered were from a recent set of emissions taken at a nearby plant utilising the same engine and undertaking similar processes. Although PEC emissions using the H1 tool were shown to be significant, the operator did not carry out further detailed modelling, this is in line with H1 guidance that states that for combustion plant below 20MWth, a case may be made to the Environment Agency that detailed modelling is not warranted for some small, low risk releases.

In order to verify the maximum environmental impacts and the impacts of pollutants of concern (NO_X and SO_2) at nearest sensitive receptors the Environment Agency has carried out further assessment with our internal screening tool which uses AERMOD Prime as the dispersion model. Source terms for the model were based on reported stack height and flow rate data. The assessment was carried out using very conservative BAT emission limit values and assuming operation of the CHP 100% of the time.

Monitoring of CO levels in biogas-driven CHP plants has shown CO to be typically present at below benchmark levels as indicated in Agency Guidance LFTGN08, in accordance with the generic risk assessment for standard rules set number SR2012 No 11 v1.0 emissions for this size engine are considered to be low risk and therefore have not been considered further.

NO_2

The Model predicts that based on the information provided and emitting at the maximum permitted ELV , the maximum ST PEC of NO_2 will reach 47% of the Air Quality standard of 200µg/m^3 and 53% of the LT AQS of 40µg/m^3. Modelled Long Term PEC's at nearest residential receptors are between 27-38% of the AQS.

Aermod considers these emissions to be low-medium risk respectively i.e they are not insignificant but not significant and therefore do not need to be considered further.

Pollutant	Averaging Time	Percentile	X (m)	Y (m)	Distance (m)	Model PC Conc ug / m3	Model PC / AQS	Model PEC / AQS	Environmental Risk
NO2	1 hr	99.79	466513	441028	76	76.2	0.38	0.47	MEDIUM
NO2	1 Year	Annual Mean	466543	441028	106	12.5	0.31	0.53	MEDIUM

PC = Process Contribution
PEC = PC + Background

Receptor Name	Pollutant	Averaging Time	Percentile	X (m)	Y (m)	Distance (m)	Model PC Conc ug / m3	Model PC / AQS	Model PEC / AQS	Environmental Risk
Haycroft Cottage	NO2	1 hr	99.79	466906	440982	469	19.6	0.10	0.19	LOW
Haycroft Cottage	NO2	1 Year	Annual Mean	466906	440982	469	2.2	0.05	0.27	MEDIUM
Mallard Lodge	NO2	1 hr	99.79	466579	440982	144	54.2	0.27	0.36	MEDIUM
Mallard Lodge	NO2	1 Year	Annual Mean	466579	440982	144	6.1	0.15	0.37	MEDIUM
Thrnhill Farm	NO2	1 hr	99.79	466328	440792	247	29.7	0.15	0.24	MEDIUM
Thrnhill Farm	NO2	1 Year	Annual Mean	466328	440792	247	2.3	0.06	0.28	MEDIUM

PC = Process Contribution
PEC = PC + Background

SO_2

The Model predicts that based on the information provided and emitting at the maximum permitted ELV, that the maximum ST PEC will reach 59% of the Air Quality standard of 266ug/m^3 and 28% of the LT AQS of 50µg/m^3. Aermod considers these emissions to be medium risk respectively i.e they are not insignificant but not significant and therefore do not need to be considered further.

Receptor Name	Pollutant	Averaging Time	Percentile	X (m)	Y (m)	Distance (m)	Model PC Conc ug / m3	Model PC / AQS	Model PEC / AQS	Environmental Risk
Haycroft Cottage	SO2	15 min	99.90	466906	440982	469	39.1	0.15	0.18	MEDIUM
Haycroft Cottage	SO2	1 Year	Annual Mean	466906	440982	469	1.5	0.03	0.13	MEDIUM
Mallard Lodge	SO2	15 min	99.90	466579	440982	144	111.6	0.42	0.46	MEDIUM
Mallard Lodge	SO2	1 Year	Annual Mean	466579	440982	144	4.3	0.09	0.19	MEDIUM
Thrnhill Farm	SO2	15 min	99.90	466328	440792	247	59.3	0.22	0.26	MEDIUM
Thrnhill Farm	SO2	1 Year	Annual Mean	466328	440792	247	1.6	0.03	0.13	MEDIUM

PC = Process Contribution
PEC = PC + Background

Pollutant	Averaging Time	Percentile	X (m)	Y (m)	Distance (m)	Model PC Conc ug / m3	Model PC / AQS	Model PEC / AQS	Environmental Risk
SO2	15 min	99.90	466513	441028	76	147.5	0.55	0.59	MEDIUM
SO2	1 Year	Annual Mean	466543	441028	106	8.8	0.18	0.28	MEDIUM

PC = Process Contribution
PEC = PC + Background

Although the emissions could not initially be screened out as insignificant under H1 , the modelling predicts that the PEC's for NO_2 and SO_2 at all relevant modelled receptors for Long term and Short Term impacts are below the relevant 70% LT and 20% ST thresholds and will unlikely lead to a breach of AQS at these locations.

The Environment Agency therefore concludes that the CHP plant emissions will not lead to a breach of AQS outside of the permitted boundary

The operator has confirmed that activities will be managed and operated in accordance with a management system including the inspection and maintenance of equipment/engine management systems. The activities are not being carried out within an AQMA designated for NOx.

Emissions to controlled waters

The operator currently holds a discharge consent issued by the Environment Agency (Consent number 27/24/0375) for the discharge to controlled waters of treated effluent (Max 600m^3) from the processing of vegetables, cleaning of the plant and other associated equipment and sewage effluent arising from existing non regulated site operations

Quantitative discharge limits are set in the existing consent for suspended solids, biological oxygen demand (BOD) and ammoniacal nitrogen. The limits specified within the consent were initially set by the Environment Agency in 2005 to minimise the polluting effects of the discharge made from the works to controlled waters.

Due to legislative changes, particularly the implementation of the water framework directive (WFD) and the operator's proposal to treat a proportion of the digestate liquid fraction for disposal purposes, the Environment Agency have re-checking the original risk assessment for robustness, and undertaken water quality modelling using mass balance calculations (Monte Carlo). Although there are several private sewage discharges in the intervening river stretch between the discharge location and the WFD monitoring point, the water body is currently indicating 'High' chemical status for Ammonia and BOD and 'Good' status for Phosphate.

A full review of the existing discharge consent concluded that in view of the operators proposals and to ensure that the WFD class target was not compromised there was a need to tighten the existing permitted Emission Limit Value (ELV) for Ammonia from 10mg/l to 3mg/l and add an ELV for Total Phosphorus of 1mg/l (twelve month mean). In addition, the discharge consent permitted a maximum daily discharge volume of 600m^3, however Environment Agency records showed that the maximum daily discharge was nearer 450m^3 with an average daily effluent discharge volume of 220m^3. This was confirmed in the application supporting documents. Due to the receiving water course having minimal low flows, all modelling and derivation of effluent quality limits were undertaken using these values. In view of this assessment, the volume of daily effluent permitted from the facility is reduced from 600m^3 to 450m^3.

The operator has confirmed that they will be able to meet these limits, and have provided a suitable contingency plan to deal with the treated effluent should it fail to meet the limits that are set in the permit.

There will be no significant increases in emissions to water as a result of this variation.

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
Consultation		
Scope of consultation	The consultation requirements were identified and implemented. The decision was taken in accordance with RGN 6 High Profile Sites, our Public Participation Statement and our Working Together Agreements. The application was publicised on the Environment Agency website on 11th November 2014.	✓
Responses to web publicising.	The web publicising, responses (Annex 2) were taken into account in the decision.	✓
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 EPR RGN 1 Understanding the meaning of operator.	✓
European Directives		
Applicable directives	All applicable European directives have been considered in the determination of the application.	✓
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 A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.	✓
Site condition report	The operator has provided a description of the condition of the site. As per IED requirements all new permit applications must include baseline monitoring of soil and groundwater conditions. As part of the application documents the applicant has included baseline qualitative and	✓

Aspect considered	Justification / Detail	Criteria met Yes
	quantitative soil/groundwater analysis in relation to the extent of the site footprint. The SCR adequately describes the condition of the site and therefore current pre-construction and pre-operational baseline conditions. We consider this description is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under IED– guidance and templates (H5).	
Biodiversity, Heritage, Landscape and Nature Conservation	The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation. Skipworth Common, (SAC) Lower Derwent Valley (SAC, SPA and RAMSAR) River Derwent (SAC) Disused Railway Line, NE of Skipworth (Local Wildlife Site) Manor Wood by Thornhill Farm (Local Wildlife Site) Common Wood Esrick (Local Wildlife Site) Thorganby Common Wood (Local Wildlife Site) Crookmook Moor, Skipmworth (Local Wildlife Site) Nightingale Wood (Local Wildlife Site) Manor Wood (Ancient Woodland) Gilbertson Wood (Ancient Woodland) <u>Emissions to Air</u> A full assessment of the application and its potential to affect the sites and protected species has been carried out as part of the permitting process. We consider that the application will not affect the features of the sites. “The combustion process at the PPC installation is not considered ‘*relevant’* for assessment under the Agency’s procedures which cover the Conservation (Natural Habitats &c.) Regulations 1994 (Habitats Regulations). This was determined by referring to the Agency’s guidance ‘AQTAG014: Guidance on identifying ‘*relevance’* for assessment under the Habitats Regulations for installations with combustion processes.’ Thus no detailed assessment of the effect of the releases from the installation's combustion processes on SACs,	✓

Aspect considered	Justification / Detail	Criteria met Yes
	SPAs, Ramsar or Local Wildlife Sites is required." <u>Emissions to Water</u> The site currently discharges treated effluent to controlled waters which are subject to the WFD. The discharge point is located at SE 66280 40920 being a tributary of the River Ouse. Receiving waters are classed as good status for chemical composition under the WFD. Emission limits have been set within the permit to ensure that no deterioration is caused to receiving waters and that good quality status is maintained. There are no sensitive species or nature conservation areas within 10km downstream of point source emissions from the facility. We have not formally consulted on the application. The decision was taken in accordance with our guidance.	
Environmental Risk Assessment and operating techniques		
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is unsatisfactory and required additional Environment Agency assessment to make up the shortfall. The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk assessment, all emissions may be categorised as environmentally insignificant except emissions to air from the CHP stack. Please see key decisions – emissions to air. Please see key decisions – emissions to water. The operations have the potential to generate odour pollution. The operator has provided a suitable risk assessment in relation to potential odour generation from the facility and has a suitable odour management plan, monitoring procedure and complaints procedure in place. There are limited receptors and no complaints have been received in relation to odour in the last 30yrs in relation to the existing operations.	✓

Aspect considered	Justification / Detail	Criteria met Yes
Operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. The proposed techniques/emission levels for priorities for control are in line with the benchmark levels contained in the TGN IPPC S5.06, How to comply with your Environmental permit EPR 1.00 and Environment Agency guidance LFTGN08, LFTGN05, M18, M2 and we consider them to represent appropriate techniques for the facility. The permit conditions ensure compliance with relevant BREFs and ELVs deliver compliance with BAT-AELs. We consider that the emission limits included in the installation permit reflect the BAT for the sector.	✓
The permit conditions		
Raw materials	We have specified limits and controls on the use of raw materials and fuels in Schedule 2 of the permit. Specifications have been made to ensure the quality of the raw feed material and to ensure that any chemicals stored on site are for operational requirements only.	✓
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: The proposed techniques for control are in line with the benchmark levels contained in the TGN S5.06 and we consider them to represent appropriate techniques for the facility. We made these decisions with respect to waste types in accordance with the List of Wastes (England) regulations 2005, European Waste Catalogue (EWC) 200/532/EC (Amended), TGN IPPC S5.06 and Technical Guidance Note – *Framework for assessing suitability of wastes going to anaerobic digestion, composting and biological treatment*.	✓
Improvement	Based on the information on the application, we consider	✓

Aspect considered	Justification / Detail	Criteria met
		Yes
conditions	that we need to impose improvement conditions. We have imposed improvement conditions to ensure that appropriate measures are in place to ensure that accidents that may cause pollution are minimised. <u>Effluent Treatment Plant Optimisation (IC1)</u> An improvement condition has been included for the operator to submit a written report to the agency with the results of a review of the performance and optimisation of the effluent treatment plant to minimise emissions of phosphorus, ammonia and COD. The report must include an assessment of the level of emissions that can be achieved under optimum operating conditions including identification of any further works required and dates for implementation of individual measures. We have imposed this improvement condition to ensure that appropriate measures are in place to minimise pollution to the aquatic environment. <u>Assessment of ETP bund integrity (IC2)</u> The operator is connecting the liquid digestate storage tank to an existing effluent treatment tank. An improvement condition has been included which requires the operator to obtain an independent quality assurance report for the construction and integrity of the Effluent Treatment Plant (ETP) area. We have imposed this improvement condition to ensure that appropriate measures are in place to ensure that accidents that may cause pollution are minimised. <u>Fugitive Odour Pollution (IC3)</u> The operations have the potential to generate odour pollution. The operator has provided a suitable risk assessment in relation to potential odour generation from the facility, has a suitable odour management plan, monitoring procedure and complaints procedure in place. There are limited receptors and no complaints have been received in relation to odour in the last 30yrs in relation to the existing operations. However whilst we accept the operators risk assessment, we have additionally included	

<table>
<tr><th>Aspect considered</th><th>Justification / Detail</th><th>Criteria met
Yes</th></tr>
<tr><td></td><td>an improvement condition (IC3) to ensure that the odour management plan is reviewed within 3months of plant start-up. The report must contain dates for the implementation of individual measures identified in order to ensure compliance with indicative BAT as provided in Sector Guidance Note S5.06 and Horizontal Guidance Note H4. We have imposed this improvement condition to ensure that appropriate measures are in place to prevent or minimise odour pollution.</td><td></td></tr>
<tr><td>Incorporating the application</td><td>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.

These descriptions are specified in the Operating Techniques table S1.2 in the permit.</td><td>✓</td></tr>
<tr><td>Emission limits</td><td>We have decided that emission limits should be set for the parameters listed in the permit.

<u>Emissions to Air</u>

The following substances have been identified as pollutants of concern from the CHP stack (Emission Point A2) and ELVs based on BAT have been set for those substances, these being taken from Table “B” of LFGTN 08.

<table>
<tr><td>Emission</td><td>Emission Limit Value</td></tr>
<tr><td>Oxides of Nitrogen</td><td>500 mg/m^3</td></tr>
<tr><td>Carbon Monoxide</td><td>1400 mg/m^3</td></tr>
<tr><td>Total VOCs</td><td>1000 mg/m^3</td></tr>
<tr><td>Sulphur Dioxide</td><td>350 mg/m^3</td></tr>
</table>

The following substances have been identified as being pollutants of concern from the ground flare (Emission point A1) and ELVs based on BAT have been set for those substances, these being taken from Table “A” of LFGTN 05. Monitoring is however required only where the flare is operational greater than 10% of the time (on an annual basis). The flare will be providing a standby role only, being used when the CHP is non-operational e.g. routine servicing, breakdown or commissioning.</td><td>✓</td></tr>
</table>

Aspect considered	Justification / Detail	Criteria met
		Yes
	<table><tr><td>Emission</td><td>Emission Limit Value</td></tr><tr><td>Oxides of Nitrogen</td><td>150 mg/m^3</td></tr><tr><td>Carbon Monoxide</td><td>50 mg/m^3</td></tr><tr><td>Total VOCs</td><td>10 mg/m^3</td></tr></table> These monitoring requirements have been imposed in order to ensure ongoing compliance in accordance with BAT and to ensure a high level of protection for the environment. <u>Emissions to controlled Waters</u> The following substances have been identified as pollutants of concern from the discharge of treated effluent from the effluent treatment plant. It is considered that the numeric limits described below will prevent significant deterioration of receiving waters. Limits for emissions to controlled waters have been applied to ensure that no deterioration in Water Framework Directive classification status. • BOD 20mg/l • Ammonia 3mg/l • Phosphorus 1mg/l • Flow 450m^3/day (Maximum) The operator has a suitable contingency plan should the effluent quality exceed the discharge emission level values. <u>Please see Key issues for further information</u>.	
Monitoring	We have decided that monitoring should be carried out for the parameters listed in table S3.1, S.3.2 and S3.3 of the permit, using the methods detailed and to the frequencies specified. Monitoring requirements have been imposed in order to prevent pollution from the CHP plant and emergency flare (Table S3.1) and effluent treatment plant (S3.2). Monitoring requirements are incorporated in accordance with Sector Guidance S5.06, How to comply with your Environmental permit EPR 1.00 and Environment Agency guidance LFTGN08, LFTGN05, M18 and M2. The	✓

Aspect considered	Justification / Detail	Criteria met Yes
	objective is to ensure continued efficient operation of the control systems and continued compliance with relevant legislation. Process monitoring requirement have been additionally incorporated (Table S3.3) this is proportionate to the process and in accordance with Environment Agency Guidance. Based on the information in the application we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.	
Reporting	We have specified reporting in the permit. Reporting of oxides of nitrogen, carbon monoxide, total VOCs and sulphur dioxide from the CHP stack is required within the first three months of commissioning new engines and annually thereafter. This is proportionate for the process, and in accordance with Environment Agency technical guidance LFTGN08 and LFTGN05, confirming compliance with relevant benchmarks. Reporting of emission to water for BOD, suspended solids, ammoniacal nitrogen and total phosphorous are required on a six monthly basis. This is proportionate for the process and given the potential environmental impact, confirms compliance with relevant benchmarks and is in accordance with Environment Agency guidance M18 Reporting requirements for annual production and performance parameters are additionally included, these are proportionate to the process and in accordance with sector guidance S5.06 and EPR 1.00. Appropriate emissions to air, emissions to water and performance reporting forms have been inserted into the permit. We made these decisions in accordance Sector Guidance IPPC S5.06 and How to comply with your Environmental Permit EPR 1.00.	✓
Operator Competence		

Aspect considered	Justification / Detail	Criteria met Yes
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 RGN 5 on Operator Competence.	✓
Technical competence	Technical competency is required for activities permitted. The operator is a member of an agreed scheme. They have registered for a level 4 certificate course in waste and resource management (WAMITAB).	✓
Relevant convictions	The National Enforcement Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in RGN 5 on Operator Competence.	✓
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 RGN 5 on Operator Competence.	✓

Annex 2: Consultation responses

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

Response received from
Public Health England 15/12/2014
Brief summary of issues raised
The main emissions of potential concern are combustion emissions from the proposed CHP gas engine and potential odour emissions from solid waste from the anaerobic digestion plant. • The operator has not characterised emissions from the CHP gas engine but proposes to demonstrate compliance with emission limits when the installation is operational. The operator references several other existing operators utilising the same combustion plant in justifying that the plant will comply with emission limits. Recommendation that the regulator requires the applicant to review emissions from the CHP gas engine once operational and against emission limits • Solid waste from the anaerobic digestion plant will be stored and collected daily in the open. The operator states that odour nuisance is unlikely given the distance to nearby receptors. Recommendation that the regulator explores a more adequate risk assessment of the potential for odour nuisance and bio-aerosol generation from solid digestate stored in the open air.
Summary of actions taken or show how this has been covered
In order to verify the maximum environmental impacts and the impacts of pollutants of concern (NO_X and SO_2) at nearest sensitive receptors the Environment Agency has carried out further assessment with our internal screening tool which uses AERMOD Prime as the dispersion model. The Environment Agency concludes that the CHP plant emissions will not lead to a breach of air quality objectives of the permitted boundary. The Environment Agency have included emission limit values (ELV) for pollutants of concern and an annual monitoring requirement for emissions to air in accordance with our technical guidance LFTGN08 and LFTGN05. A requirement for monitoring within the first 3months of commissioning has also been included, this is considered proportionate for the process, given its environmental impact and confirms compliance with relevant benchmarks. The applicant has provided a full risk assessment in relation to potential odour generation from the facility, has a suitable odour management plan,

monitoring procedure and complaints procedure in place. There are limited receptors and no complaints have been received in relation to odour in the last 30yrs. The applicant has addressed the potential odour generation from the digestate treatment area in detail and has committed to undertake further works in this area should there be an issue with odour at this location once the plant has been commissioned if necessary. Bio-aerosol generation from solid digestate storage will be minimised by the covering of wastes and daily removal from site. We have additionally included an improvement condition (IC3) to ensure that the odour management plan is reviewed within 3months of plant start up. The plan must contain dates for the implementation of individual measures identified in order to ensure compliance with indicative BAT as provided in Sector Guidance Note S5.06 and Horizontal Guidance note H4.

Response received from
Environmental Health 03/12/2014
Brief summary of issues raised
Once an Environmental Permit is issued complaints in relation to any emissions from the permitted installation are dealt with by the issuing authority. It was recommended that any such permit is subject to suitable conditions to include all emissions, including noise, of all activities associated with the operation of the plant, including vehicle movements, loading and unloading.
Summary of actions taken or show how this has been covered
The EPR permit contains necessary conditions in relation to all point source and fugitive emissions from the facility to the environment including noise and vibration. These are described in 'Section 3' Emissions and Monitoring within the permit. In addition relevant operating techniques are included with section 1.2 of the EPR Permit and conditions 3.4.1 and 3.4.2 are included in the permit to address noise and vibration issues.