Permitting decisions

Bespoke permit

We have decided to grant the permit for Hartlepool BioPower Anaerobic Digestion Plant operated by BioConstruct NewEnergy Limited.

The permit number is EPR/CP3834YH.

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.

Description of the main features of the Installation

The Installation is located at Brenda Road near Hartlepool, Teesside at national grid reference NZ 451454 528363.The Installation is bordered to the north, south and east by industrial and commercial units and a railway line to the west. The nearest residential property is located on Bilsdale Road, about 620 metres to the north east with other residential properties located around 1.2 km north and 1.8 km west.

The Installation will comprise the following operations:

- Anaerobic digestion plant (two primary digesters and one post digester);
- A reception building containing seven pre-storage tanks;
- Combustion plant consisting of four combined heat and power (CHP) engines (12.5 MW aggregated) and one emergency flare;
- Four digestate storage tanks; and
- Odour abatement (de-sulphurisation plant, scrubber, activated carbon filters and UV reactor)

The Installation has been designed to process up to 300 tonnes per day of waste consisting of food waste, agricultural waste and green waste, with a maximum annual throughput of 108,700 tonnes. Liquid waste will arrive in sealed tankers and will be pumped into the pre-storage tanks. The pre-storage tanks are located within a reception building that is provided with fast acting doors, kept under negative pressure and fitted with an extraction and odour abatement system. The solid waste (seasonal green waste) is received within an outside reception area where it is loaded into the digestion process.

Biological treatment via anaerobic digestion will take place in two primary digestion tanks where the waste is held for approximately 44 days and a post digestion tank, where it is held for approximately 21 days to ensure maximum biogas capture. The temperature in the digesters will be maintained between 35°C and 40°C.

The by-product from the process (whole digestate) will be pumped to pasteurisation tanks where the waste will undergo heat treatment at 70ºC for a minimum of one hour as required by the Animal By-Products Regulations. The heat-treated digestate will be transferred to the digestate storage tanks prior to removal from site for use as a soil improver. This environmental permit does not authorise the spreading of digestate on land.

Biogas drawn from the digesters will pass through a de-sulphurisation process and will be subsequently combusted in four CHP engines. The majority of the electricity produced will be fed into the National Grid with a proportion used at the facility. The heat produced from the engines will be recovered via heat exchangers and integrated in the process heating requirements including the pasteurisation of waste. Biogas will be burnt in the emergency flare in the event it cannot be utilised by the CHP engines.

Main releases to air will be odour emissions from the processing of waste, odour abatement and emissions from the combustion of biogas (CHP engines and emergency flare). Oxides of nitrogen, sulphur dioxide, carbon monoxide and total volatile organic compounds will be monitored periodically. There will be no process discharges to controlled waters. Uncontaminated site surface water run-off arising from rain will be discharged to a surface water drain.

The site will be provided with hardstanding and secondary containment constructed in line with industry best practice standards to reduce the impact of pollution to surface water and groundwater. An Environmental Management System (EMS) will be in place prior to the commencement of site operations.

There are three internationally designated ecological sites within 10 km of the Installation (Durham Coast SAC, Teesmouth and Cleveland Coast SPA / Ramsar and Northumbria Coast SPA). Ten non-statutory sites and three Sites of Special Scientific Interest are located within 2 km of the Installation. Assessment by the Environment Agency shows that emissions from the Installation are unlikely to have an adverse impact on interest features of the ecological sites.

Key issues of the decision

1. Management of odour emissions at the Installation

The operations at the Installation are considered inherently odorous and therefore we have required an odour management plan (OMP) prepared in accordance with the Environment Agency's H4 guidance.

The applicant (now the operator) submitted an OMP with the Application. During the determination, we requested more information from the applicant with respect to the management of odour emissions on site. Key measures of the applicant's OMP are discussed below.

Inventory of materials

We are satisfied that the applicant has provided an inventory of odorous materials at the Installation. The inventory provides an assessment of the odour potential of wastes that will be accepted according to its source i.e. abattoirs, commercial restaurants, supermarkets and food producers.

The OMP describes the management controls that will be put in place to mitigate odour. Appropriate systems and procedures are in place to prevent the acceptance of unsuitable wastes in the process. Agreements will be established with the waste suppliers to ensure that only treated /processed waste suitable for treatment in the AD process are received at site. As part of establishing the supply contract, the operator will obtain information about the nature of the process generating the waste and the composition of the waste. A representative sample of waste will be obtained from the production process and a comprehensive characterisation of the waste will be carried out by the operator unless all necessary information is available from the producer or holder of the waste.

The parameters that would be tested as part of the detailed feedstock characterisation would include but will not be limited to pH and alkalinity, particle size distribution and physical contaminants (solid feedstock only), total solids and volatile solids, total organic carbon, biochemical methane potential, nutrient analysis, calorific value, fibre content, volatile fatty acids, heavy metals and potentially toxic elements. The characterization will ensure that the waste does not inhibit the digestion process and/or generate odour emissions that cannot be controlled or abated. The operator reports that any subsequent supply agreement will include details of procedures that will be undertaken to ensure the required feedstock quality is maintained during acceptance.

In case the information is provided by the producer or the holder of the waste, the operator will ensure that the technical appraisal has been carried out by suitably qualified and experienced staff. Based on the information on the waste arising and the sample provided, the technically competent manager will verify the information provided regarding composition and biodegradation of waste and will assess the suitability of the waste for the AD plant.

Periodic sampling of the feedstock will be carried out and the sampling frequency will be determined by the technically competent manager based on the assessment of levels of variability associated with the feedstock source.

The records of the waste types accepted including the relevant EWC codes will be held on site in an electronic format. For all the waste arriving at the site, a waste tracking system will be adopted and a record will be maintained of the waste during its acceptance, checking, storage, treatment and removal off site.

All wastes will be assessed for suitability of acceptance by an appropriately trained individual. To ensure that wastes which arrive at the site are acceptable under the permit, waste enquiry forms will be completed by the customer for all new waste streams.

We consider robust pre-acceptance procedures to be vital in ensuring a complete understanding of the odour potential of wastes accepted on site. The applicant has provided pre-acceptance procedures in the Application that are in accordance with the Environment Agency's How to comply with your environmental permit. Additional guidance for Anaerobic Digestion, Reference LIT 8737, Report version 1.0 and November 2013.

Management of sources of odour on site

The applicant provided information with respect to the management of odour sources from the various stages of the anaerobic digestion process.

Liquid feedstock will arrive at the site in tankers and will be emptied into one of the reception pits which will connect into the seven pre-storage tanks. Waste will only be accepted at the site if a waste reception tank is available to receive the load. For the liquid feedstock, the pre-storage tanks are provided to ensure that loads are received separately and are not blended until the waste acceptance procedure has been completed. Waste deposited in the pre-storage tanks will be stored for no more than 5 days. The liquid feedstock is transferred to the digesters through pipeline.

Solid feedstock will enter the site in trucks and will be weighed and the contents will be tipped onto the concreted area in front of the solid material storage building. The feedstock will then be loaded into the solid feeding system through the use of a telehandler with a front end bucket loader, provided there is capacity in the solid feeder system to do so. When the solid feeder is full, the remainder of the delivery will be transferred into the solid materials storage building and stored until the solid feeding system can be loaded again.

The maximum storage capacity of the solid material building is approximately 238 m^3. Taking account of the space within the solid material storage building required for the quarantine area (25 m^3), the remaining space within the solid material storage building will be 213 m^3. The average solid waste load size is 25 m^3. The solid material deliveries will be seasonal garden waste. It is anticipated that most deliveries will be immediately processed into the solid material charging system on the same day. Assuming the delivery of one solid waste load per day, the solid material storage building will have the capacity for 8½ days or 8½ loads. The operator reports that material will be retained within the quarantine area for a maximum of 48 hours before it is removed from site or processed, subject to agreement with the Environment Agency.

All tanks will be contained within an impermeable bund. For the solid feedstock, a solid materials storage building with an impermeable surface has been provided.

During the anaerobic digestion process, the operator proposes to monitor the following parameters as a measure of digestion process stability – alkalinity, pH, temperature, gas pressure, ammonia, hydrogen sulphide, organic loading rate, concentration of volatile fatty acids (VFA), C:N ratio and biogas production rates.

Pasteurised digestate will be transferred into sealed storage tanks via pipeline, minimising exposure to air. During loading onto tankers for despatch off-site, the digestate will be discharged using a coupling mechanism under the supervision of the operator. The tankers will drive as close as possible to the taking stations so the connection between taking station and tanker by hoses will be as short as possible. The taking stations will be equipped with valves which will be maintained in an open position only after the tanker is connected to the taking station and will be closed before disconnection. The SCADA system will control the volume of the digestate that is discharged to prevent overfilling of the tanker.

Containment and abatement of odorous emissions

We accept that even though appropriate management of the AD facility will minimise the potential for odour, containment and abatement of odour is still required.

Fugitive emissions to air are expected to occur at the AD facility from waste acceptance, storage and pre-treatment activities in the waste reception building, and as a result of anaerobic digestion in the three sealed digesters. The air treatment system is designed to treat odours from the air extracted from the reception building. It will consist of a ventilation and extraction system to keep the buildings under negative pressure and provide aeration of the reception areas. Fast action roller doors will open only during waste delivery.

The applicant determined the rate of air changes in the waste reception building to be 7 air changes per hour. This is based on the calculation of the volume of air that requires abatement (20,000 m^3). There is a separate ventilation of all the pre-storage tanks in the tank room which has an extraction of 1.3 air changes per hour.

The applicant proposes to use a four-stage abatement system comprising of a filter, scrubber, UV /ozone system and activated carbon unit to treat odour emissions prior to discharge to atmosphere.

Stage 1 – Ammonia scrubbers

Ammonia scrubbers will be installed and will be capable of removing more than 95% of the ammonia in the gas stream from the reception tanks. The remainder will be removed in the oxidation step (UV process).

Stage 2 – Filtration system

The gas is first filtered in a filtration system, in order to allow the odour abatement system to work without interference from dust /aerosols that would otherwise tend to clog the downstream media.

Stage 3 – UV radiation /ozone treatment

The downstream odour abatement system is based on the use of intense and energetic UV radiation (185 and 254 nm UV-C spectra) to fragment the organic molecules and oxidize the odour compounds by the mechanism of photolysis and ozonolysis. The oxidized species have a much lower odour threshold than the un-oxidized species.

Photolysis is a chemical reaction in which photons (light particles) break down chemical compounds. The energy in the light causes molecules to vibrate, which in turn breaks the bonds that keep the molecules together and causes the compound to break up. Photolysis can be used to destroy grease and gaseous odours and also to attack bacteria, mould and viruses. The system utilises high intensity UV-C light which also produces ozone. Ozone produced by the UV-C lamps continues to break down any remaining odours via the mechanism of ozonoylsis – reaction of ozone with odorous molecules leading to their oxidation.

Stage 4 – Activated carbon

A short /medium residence time carbon bed will be installed after the UV reactor. The activated carbon treatment process will comprise of the following two stages:

- Standard activated carbon (non-impregnated) to remove the non-polar organic matter in the gas stream (there are plenty of molecules with low odour threshold value in the gas stream that are non-polar). This is also where the excess ozone is broken down to ozone radicals that consume VOCs adhered to the active carbon surface.
- impregnated activated carbon filters to remove reduced sulphur compounds (H_2S, mercaptans, sulphides).

The applicant reports that the activated carbon has a long-life time as the excess ozone generated by the UV lamps helps to destroy organic compounds captured on the carbon, thus significantly extending the carbon life (2-4 times). The applicant concludes that the combination of the 4-stage odour treatment technology provides a high performance with competitive operational costs.

The Environment Agency Technical Guidance H4 – Odour Management and the Draft Anaerobic Digestion Technical Guidance lists the use of plasma technology (ozone) and ultra violet (UV radiation) as “end of pipe” technology for odour abatement. The treatment of odours via UV radiation is used for the treatment of waste waters. It is an emerging technique in the Food & Drink industry sector and similar systems have been installed at some biowaste treatment sites.

The applicant submitted a BAT options appraisal /justification for choosing the 4-stage odour abatement system to treat odour emissions in the reception building at this particular site. We have therefore included two improvement conditions in the permit that requires the operator to undertake olfactory monitoring to demonstrate the performance of the proposed odour abatement system three months following the end of commissioning of the Installation (Improvement condition 1). In addition, the operator is required to undertake a review of the environmental performance of the proposed abatement system as installed against the design parameters set out in the application including any areas of improvement six months following the end of commissioning of the Installation (Improvement condition 2).

Emergencies and incidents

The applicant has considered the impact of emergencies and incidents on odour emissions. We are satisfied that contingency actions will be taken should there be any site incident and/or emergency. We are satisfied with the timescales that the applicant has proposed for plant or parts repair or replacement and the applicant's commitment to cease waste acceptance in the event of plant breakdown.

Our assessment

Overall, we consider that the applicant has proposed appropriate odour management measures to minimise any impact on nearby sensitive receptors. In the event that odour emissions are causing pollution, the permit conditions require the operator to comply with the measures proposed in the OMP. The odour conditions in the permit are sufficient to ensure that odour emissions from the facility do not cause annoyance. Process monitoring conditions including daily olfactory tests at the site boundary will also ensure that emissions of odour are not causing annoyance.

We have reviewed and approved the OMP in its current format with the additional information submitted during the determination. We consider that the OMP complies with the requirements of our Technical Guidance H4 – Odour Management. We agree with the scope and suitability of key measures but this should not be taken as confirmation that the details of equipment specification design, operation and maintenance are suitable and sufficient. That remains the responsibility of the operator.

Based upon the information in the Application, we are satisfied that appropriate measures will be in place to prevent or where that is not practicable to minimise odour and to prevent pollution from odour.

2. Assessment of impact on air quality

The applicant's assessment of the impact of site activities on air quality is set out in the Application. The assessment comprises:

- The dispersion modelling of emissions to air from the operation of four CHP engines; and
- The study of the impact of emissions on nearby sensitive habitat /conservation sites.

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality and conservation sites. These assessments predict the potential effects on local air quality from the Installation's stack emissions using the ADMS (version 5.2) dispersion model, which is a commonly used computer model for regulatory dispersion modelling.

Meteorological data for the assessment comprises five years continuous monitoring from Durham Tees Valley Airport weather station (2011-2015) located 20.4 km from the proposed site. The applicant's assessment has assumed "worst-case" scenario for conversion rates for NOx using 50% in relation to short term impacts and 100% in relation to long term impacts. The impact of the terrain surrounding the site and buildings upon plume dispersion was considered in the dispersion modelling. As well as calculating the peak ground level concentration, the applicant has modelled the concentration of key pollutants at a number of specified locations within the surrounding area.

The pollutants considered in the assessment are those associated with combustion activities, namely nitrogen oxides, sulphur dioxide, carbon monoxide and total volatile organic compounds (VOCs). We are satisfied that there is no need to consider any other pollutants, as the fuel is biogas derived from separated biodegradable wastes.

Impact on human receptors from the operation of the CHP engines

The applicant's modelling predictions indicate the predicted peak ground level exposure to pollutants in ambient air. We have made our own simple verification of the percentage process contribution /deposition and predicted environmental concentration submitted by the applicant. Our figures may be very slightly different to those shown in the Application. Any such minor discrepancies do not materially impact on our conclusions. The figures presented in this document are derived from the applicant's dispersion modelling report.

Table 1 shows the maximum modelled concentration of nitrogen oxides from the operation of the four CHP engines at the most sensitive human receptor (Bilsdale Road). We have not reported emissions of sulphur dioxide, total VOCs and carbon monoxide in this document as these were shown to be insignificant. In addition, we have not reported on the grid maximum process contribution as the area of maximum impact is in a location where the public do not have access to.

Table 1 – Maximum modelled concentrations of nitrogen oxides (NOx ELV 500 mg/m^3) at the most sensitive human receptor (Bilsdale Road)

Pollutant	ES	Back-ground	Process Contribution (PC)		Predicted Environmental Concentration (PEC)	
	µg/m^3	µg/m^3	µg/m^3	% of ES	µg/m^3	% of ES
NO_2 (annual)	40	14.17	2.80	7.01	16.97	42.4
NO_2 (1-hour)	200	[1]	14.09	7.04	[1]	[1]
Note [1] – Where the PC is less than 1% of the benchmark for a long term measurement or less than 10% for a short term measurement, the impact is considered to be insignificant. In these cases, examination of the PEC is not required.						

The results in the tables above show that the ground level annual PC of NO_2 is 7.01% of the ES and the short term PC of NO_2 as 7.04% of the ES at the nearest sensitive receptor. We consider that the receptor ground level annual mean PC is significantly higher than the levels were emissions are considered insignificant (i.e. less than 1% of the annual mean ES). Our principal focus is with the long term impact of NO_2. We can use this pollutant as an indicator against which we carry out analyses of stack height, BAT and appropriate levels of dispersion. This is because annual NO_2 is the most sensitive to pollution taking into account the environmental impacts from likely emissions to atmosphere from this type of process.

We therefore requested additional information from the applicant to demonstrate how the current proposal is in accordance with the Best Available Techniques (BAT). Given the level of the NO_2 PC, we also requested that the applicant review their proposals to further reduce the impact of nitrogen oxides from the stack including a BAT options appraisal. The request was included in the information notice served on 17 October 2017.

<u>BAT options appraisal for NOx reduction</u>

The applicant provided a BAT options appraisal and considered the following options for the reduction of nitrogen oxides released from the CHP engines. The assessment of the options has been carried out for each of the following scenarios taking into account energy efficiency, costs (capital costs, operational and maintenance costs), quantity of raw materials and the impact of NOx emissions.

Base Scenario

The base scenario is the same as the current proposal, which consists of four individual CHP stacks of 10.6 m each, with an emission limit value (ELV) of 500 mg/Nm^3.

Option 1 – Increasing Stack height

This option considers four individual CHP stack heights of 13 m, 15 m and 17 m with an ELV of 500 mg/Nm^3. The applicant reports that the 17 m CHP stack cannot be supported by containerised CHP engine units and is therefore not practical to install. However, this option has been considered to assess the impact of increasing the stack height on NOx emissions.

Option 2 – Stack Configuration

This option considers a combined windshield of 10.6 m with four individual flues and an ELV of 500 mg/Nm^3.

Option 3 – Engine Modifications

This option considers changes to the ratio of fuel (gas) and combustion air to reduce the NOx ELV from 500 mg/Nm^3 to 450 mg/Nm^3. The modification can be achieved by changing the mixing ratio of fuel and air. This considers the emissions from four individual stacks of 10.6 m and combined windshield of 10.6 m and 13 m height.

Option 4 – Reduction in the number of gas engines

This option considers running the gas engines at 75% load instead of at full load (100%). This option will have an implication on the total energy generation capacity of the plant, bringing it down from 5 MW to 3.74 MW. This option has been considered along with the engine modifications resulting in a lower NOx ELV of 450 mg/Nm^3.

Option 5 – Secondary NOx control measures

This option considers the installation of Selective Catalytic Reduction (SCR) on the gas engines. The engine manufacturer has confirmed that these can be installed on the gas engines selected for the project and will reduce the NOx emissions by 80%.

The applicant carried out a cost benefit analysis of the alternative techniques. The capital cost of each option has been calculated and compared with the environmental impact at the nearest sensitive receptor (Bilsdale Road) as shown in the table below.

Table 2 – BAT options appraisal for NOx reduction and environmental impact assessment at most sensitive receptor (Bilsdale Road)

NOx reduction options	Capital cost[1]	PC (long term)	PC% of long term ES	PEC% of long term ES
Base case (original proposal)	£0	2.8	7.01	42.4%
Option 1a – stack height of 13 m	£60,000	2.6	6.6	42.0%
Option 1b – stack height of 15 m	£90,000	2.5	6.3	41.7
Option 1c – stack height of 17 m	£150,000	2.4	5.9	41.4
Option 2 – combined windshield of 10.6 m	£350,000	1.8	4.4	39.8
Option 3a – 4 stacks of 10.6 m	£0	2.5	6.3	41.7
Option 3b – combined windshield of 10.6 m	£350,000	1.6	3.9	39.4
Option 3c – combined windshield of 13 m	£370,000	1.5	3.8	39.2
Option 4 – gas engines operating at 75% load	£0	1.9	4.7	40.2
Option 5 – SCR abatement	£880,000	80% reduction of NOx impact	--	--
Note 1 – Based on cost information provided by CHP engine manufacturer, Jenbacher.				

The applicant has investigated reducing the NOx emissions to 250–300 mg/Nm^3. Discussions with the engine manufacturer (Jenbacher) have confirmed that this can be achieved, however this will require replacement of several parts of the engine such as pistons, piston rings, injectors, turbo charger, etc. This will also result in a reduction in the electrical efficiency of each engine by 1.5 to 2%. The engine supplier has confirmed that this will cost approximately £75,000 per engine and therefore a total expenditure of £300,000 for all four CHP engines.

In addition, the applicant has also looked at reducing the emission limit values further by modifying the combustion parameters alone. The engine supplier has considered the option of reducing the NOx ELV to 400 mg/Nm^3 through engine tuning alone, and has concluded that this results in an increase in the VOCs concentrations to a level that will be above applicable UK limits (1,000 mg/Nm^3).

The applicant concludes that Option 3a, which is operating the four CHP engines at NOx ELV of 450 mg/Nm^3 reduces the annual PC from 7.01% to 6.31% of the ES (see Table 2 above) with no additional costs compared to other options and is therefore BAT for this Installation.

Our assessment

Although NOx emissions (annual mean) did not screen out as insignificant, we consider that it is unlikely that the emissions will give rise to significant pollution in that the predicted environmental concentration (PEC) is less than 100% (taking expected modelling uncertainties into account) of both the long term and short term ES. We have carefully scrutinised the applicant's proposals to ensure that they are applying BAT to prevent and minimise emissions of all pollutants released from the facility into the environment.

Air quality status should be maintained where it is already good or improved. Article 12 of Directive 2008/50/EC on ambient air quality and cleaner air (as transposed by The Air Quality Standards Regulations 2010) requires that in zones and agglomerations where the levels of sulphur dioxide, nitrogen dioxide, PM_{10}, $PM_{2.5}$, lead, benzene and carbon monoxide in ambient air are below the respective limit values, member states shall maintain the levels of those pollutants below the limit values and shall endeavour to preserve the best ambient air quality, compatible with sustainable development.

The key judgement in this determination is whether the impact of NO_2 is unacceptable and the proposed stack height is BAT taking into account, the technical characteristics of the site and local environmental conditions. In view of:

(i) the reduction of the process contribution from 7.01% to 6.3% of the NOx long term ES at the most sensitive receptor;

(ii) the predicted environmental concentration (PEC) which shows no exceedance of the ES (PEC is 41.7 % of the ES);

(iii) the associated costs of combining the stacks of the four CHP engines which have already been installed on site;

(iv) the uncertainties of modelling and the conservative nature of the assumptions used in the modelling; and

(v) actual emissions which will generally be lower than the emission limit (hence, adequate headroom to allow for unavoidable process fluctuation),

We do not consider it practical or reasonable to expect the applicant to go beyond what is considered BAT for the control of NO_2 emissions. We accept that operating the four CHP engines at NOx ELV of 450 mg/Nm^3 is BAT for this Installation.

Impact on ecological receptors from the operation of the CHP engines

The following Habitats (i.e. Special Areas of Conservation, Special Protection Areas and Ramsar) sites are located within 10 km of the Installation:

- Teesmouth & Cleveland SPA /Ramsar
- Northumbria Coast SPA /Ramsar
- Durham Coast SAC

The following Sites of Special Scientific Interest are located within 2 km of the Installation:

- Seaton Dunes and Common
- Seal Sands
- Tees and Hartlepool Foreshore and Wetlands

The following non-statutory local wildlife and conservation sites are located within 2 km of the Installation:

- Teesmouth
- Seaton And Dunes Common
- Hartlepool Power Station

- Seaton Common
- Greenabella Marsh
- Rossmere Parl Island
- Phillips Tank Farm
- Queens Meadow
- Brenda Road Sewerage Works
- Brenda Road Brownfield

Habitats Assessment

Toxic contamination (NOx and SO_2)

The background concentrations at the European designated habitat sites were obtained from the UK Air Pollution Information System (APIS) website. The modelling results are presented in Table 3.

Table 3 – Maximum modelled concentrations of NOx and SO_2 at the European designated habitat sites

Habitat Site	Parameter	Background concentration ($\mu g/m^3$)	PC ($\mu g/m^3$)	PC as % of CLe	PEC	PEC as % of CLe
Teesmouth & Cleveland SPA /Ramsar	**NO_2** (long term)	[note 1]	0.08	0.3	[note 1]	[note 1]
	NO_2 (short term)	[note 1]	0.93	1.2	[note 1]	[note 1]
	SO_2	[note 1]	0.01	0.05	[note 1]	[note 1]
Northumbria Coast SPA /Ramsar	**NO_2** (long term)	[note 1]	0.06	0.2	[note 1]	[note 1]
	NO_2 (short term)	[note 1]	0.71	0.9	[note 1]	[note 1]
	SO_2	[note 1]	0.01	0.05	[note 1]	[note 1]
Durham Coast SAC	**NO_2** (long term)	[note 1]	0.04	0.13	[note 1]	[note 1]
	NO_2 (short term)	[note 1]	0.40	0.53	[note 1]	[note 1]
	SO_2	[note 1]	0.01	0.05	[note 1]	[note 1]
Note 1: Where the PC is less than 1% of the long term critical level or less than 10% of the short term critical level, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.						

The modelling results show that the process contribution of NOx and SO_2 were insignificant at all habitat sites in that process contribution was below 1% of the long term critical level and less than 10% of the short term critical level.

Nutrient nitrogen enrichment

The background nitrogen deposition rates at the European designated habitat sites were obtained from the APIS website. The results are presented in Table 4.

Table 4 – Modelled nutrient nitrogen deposition at the European designated habitat sites

Site	Critical Load (CLo) kgN/ha/yr	Background N deposition kgN/ha/yr	PC deposition kgN/ha/yr	PC as % of CLo	PEC deposition kgN/ha/yr	PEC as % of CLo
Teesmouth & Cleveland SPA /Ramsar	*Coastal stable dune grasslands – acid type* 8-10 kgN/ha/yr	[note 1]	0.01	0.13	[note 1]	[note 1]
	Coastal stable dune grasslands – calcareous type 10-15 kgN/ha/yr	[note 1]	0.01	0.1	[note 1]	[note 1]
	Pioneer, low-mid, mid-upper saltmarshes 20-30 kgN/ha/yr	[note 1]	0.01	0.05	[note 1]	[note 1]
Northumbria Coast SPA /Ramsar	*Coastal stable dune grasslands – acid type* 8-10 kgN/ha/yr	[note 1]	0.01	0.1	[note 1]	[note 1]
	Coastal stable dune grasslands – calcareous type 10-15 kgN/ha/yr	[note 1]	0.01	0.1	[note 1]	[note 1]
	Pioneer, low-mid, mid-upper saltmarshes 20-30 kgN/ha/yr	[note 1]	0.01	0.05	[note 1]	[note 1]
Durham Coast SAC	*No critical load available*	--	0.01	--	--	--
Note 1: Where the PC is less than 1% of the long term critical load or less than 10% of the short term critical load, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.						

The modelling results show that the modelled nutrient nitrogen deposition was insignificant at all habitat sites in that process contribution was below 1% of the minimum critical load.

Acidification

The background acid deposition rates at the European designated habitat sites were obtained from APIS website. The results are presented in Table 5.

Table 5 – Modelled acid deposition rates at the European designated habitat sites

Site	Critical Load (CLo) keq/ha/yr	Background acid deposition keq/ha/yr	PC deposition keq/ha/yr	PC as % of CLo	PEC deposition kgN/ha/yr	PEC as % of CLo
Teesmouth & Cleveland SPA /Ramsar	*Acid grassland* CLmaxN: 1.998	[note 1]	0.001	0.05	[note 1]	[note 1]
	Calcareous grassland CLmaxN: 4.856	[note 1]	0.001	0.02	[note 1]	[note 1]
Northumbria Coast SPA /Ramsar	*Acid grassland* CLmaxN: 1.998	[note 1]	0.0007	0.04	[note 1]	[note 1]
	Calcareous grassland CLmaxN: 4.856	[note 1]	0.0007	0.04	[note 1]	[note 1]
Durham Coast SAC	*No critical load available*	--	0.0006	--	--	--

Note 1: Where the PC is less than 1% of the long term critical load or less than 10% of the short term critical load, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.

The modelling results show that modelled acid deposition was insignificant at all habitat sites in that process contribution was below 1% of the critical load.

SSSI assessment

Toxic contamination (NOx and SO_2)

The background concentration at the SSSI habitat sites were obtained from the UK Air Pollution Information System (APIS) website. The modelling results are presented in Table 6.

Table 6 – Maximum modelled concentrations of NOx and SO_2 at the SSSI habitat sites

Habitat Site	Parameter	Background concentration ($\mu g/m^3$)	PC ($\mu g/m^3$)	PC as % of CLe	PEC	PEC as % of CLe
Seaton Dunes and Common SSSI	**NO_2** (long term)	26.75	0.88	2.9	27.6	92.0
	NO_2 (short term)	[note 1]	6.32	8.4	[note 1]	[note 1]
	SO_2	[note 1]	0.02	0.1	[note 1]	[note 1]
Tees and Hartlepool Foreshore	**NO_2** (long term)	[note 1]	0.25	0.8	[note 1]	[note 1]
	NO_2	[note 1]	4.73	6.3	[note 1]	[note 1]

and Wetlands SSSI	(short term)					
	SO_2	[note 1]	0.01	0.05	[note 1]	[note 1]
Seal Sands SSSI	**NO_2** (long term)	[note 1]	0.22	0.7	[note 1]	[note 1]
	NO_2 (short term)	[note 1]	3.27	4.4	[note 1]	[note 1]
	SO_2	[note 1]	0.01	0.05	[note 1]	[note 1]
Note 1: Where the PC is less than 1% of the long term critical level or less than 10% of the short term critical level, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.						

Nitrogen oxides: For Seal Sands SSSI and Tees and Hartlepool Foreshore and Wetlands SSSI, the long term process contribution (PC) is less than 1% of the long term critical level and the short term process contribution is less than 10% of the short term critical level. The long term process contribution (PC) exceeded 1% of the long term critical level at the Seaton Dunes and Common SSSI and cannot be screened out as insignificant. The short term process contribution was less than 10% of the short term critical level.

Sulphur dioxide: Emissions are not likely to damage the interest features at all the SSSI habitat sites as the long term process contributions are less than 1% of the long term critical level.

Nutrient nitrogen enrichment

The background nitrogen deposition rates at the SSSI habitat sites were obtained from the APIS website. The results are presented in Table 7.

Table 7 – Modelled nutrient nitrogen deposition rates at the SSSI habitat sites

Site	Critical Load (CLo) kgN/ha/yr	Background N deposition kgN/ha/yr	PC deposition kgN/ha/yr	PC as % of CLo	PEC deposition kgN/ha/yr	PEC as % of CLo
Seaton Dunes and Common SSSI	*Coastal stable dune grasslands – acid type* 8-10 kgN/ha/yr	12.18	0.13	1.6	12.31	153.8%
	Coastal stable dune grasslands – calcareous type 10-15 kgN/ha/yr	12.18	0.13	1.3	12.31	123.1%
	Pioneer, low-mid, mid-upper saltmarshes 20-30 kgN/ha/yr	[note 1]	0.13	0.65	[note 1]	[note 1]
Tees and Hartlepool Foreshore and Wetlands SSSI	*Low and medium altitude hay meadows* 20-30 kgN/ha/yr	[note 1]	0.04	0.2	[note 1]	[note 1]

Seal Sands SSSI	*Low and medium altitude hay meadows 20*-30 kgN/ha/yr	[note 1]	0.04	0.2	[note 1]	[note 1]
Note 1: Where the PC is less than 1% of the long term critical load or less than 10% of the short term critical load, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.						

Nutrient nitrogen deposition: The process contribution at Seal Sands SSSI and Tees and Hartlepool Foreshore and Wetlands SSSI is less than 1% of the critical load and emissions can be considered insignificant. For Seaton Dunes and Common SSSI, nutrient nitrogen deposition cannot be screened out as insignificant at two of the three habitat types (*Coastal stable dune grasslands – acid and Coastal stable dune grasslands – calcareous types*). See our assessment below.

Acidification

The background acid deposition rates at the SSSI habitat sites were obtained from the APIS website. The results are presented in Table 8.

Table 8 – Modelled acid deposition rates at the SSSI habitat sites

Site	Critical Load (CLo) keq/ha/yr	Background N deposition keq/ha/yr	PC deposition keq/ha/yr	PC as % of CLo	PEC deposition keq/ha/yr	PEC as % of CLo
Seaton Dunes and Common SSSI	1.99 keq/ha/yr *Acid grassland*	[note 1]	0.011	0.55	[note 1]	[note 1]
	4.85 keq/ha/yr *Calcareous grassland*	[note 1]	0.011	0.23	[note 1]	[note 1]
Tees and Hartlepool Foreshore and Wetlands SSSI	1.99 keq/ha/yr *Acid grassland*	[note 1]	0.0096	0.5	[note 1]	[note 1]
	4.85 keq/ha/yr *Calcareous grassland*	[note 1]	0.0096	0.2	[note 1]	[note 1]
Seal Sands SSSI	4.49 keq/ha/yr *Acid grassland*	[note 1]	0.0083	0.18	[note 1]	[note 1]
	5.71 keq/ha/yr *Calcareous grassland*	[note 1]	0.0083	0.15	[note 1]	[note 1]
Note 1: Where the PC is less than 1% of the long term critical load or less than 10% of the short term critical load, the impact is considered to be insignificant. In these cases, we consider that the examination of the PEC is not necessary.						

Acid deposition: The process contribution at all the SSSI habitat sites is less than 1% of the critical load and can be regarded as insignificant.

Our assessment

Tables 6 and 7 show that there is the potential for NOx and nutrient nitrogen deposition to impact on the Seaton Dunes and Common SSSI. We have therefore reviewed the magnitude and location of the projected impact against the distribution and sensitivity of protected features, taking into account the conservative nature of the applicant's air dispersion modelling.

Even though the process contribution from the AD facility exceeds 1% of the critical level for NOx and the minimum nutrient nitrogen deposition, we are satisfied that emissions are unlikely to have a negative impact on the protected site. We have considered the following points in our assessment:

- The process contribution exceeds the NOx critical level threshold by less than 2%;
- The process contribution is a very small percentage of the existing background;
- The air quality report is based on the worst case scenario and therefore is highly conservative;
- Species highlighted as potentially at risk of impact are seasonal wintering and passage birds and are distributed throughout the SSSI. They are therefore not always present in these areas.

The emissions have been modelled at the level permissible by the Industrial Emissions Directive (IED). The dispersion modelling assumes continuous operation of the plant, and therefore the process contribution represents worst case and this is unlikely to ever be realised at the Installation. We therefore conclude that there will be no likely damage from the proposed AD facility on the interest features and habitats at the Seaton Dunes and Common SSSI.

Non-statutory site assessment

The operator's assessment of non-statutory sites was reviewed by the Environment Agency and we agree with the conclusions, that the proposal will not damage the special features of the non-statutory sites. As there are no specific regulations for the protection of these sites *(beyond our requirements to enhance biodiversity under the Natural Environment and Rural Communities Act 2006 and our wider conservation duties under the Environment Act*), we are required to ensure that the permitting of the Installation will not result in significant pollution.

In accordance with Environment Agency guidance, we consider that given the size of the process contribution which is a small fraction of the critical level and load, the impact on the sites is not likely to cause significant pollution. As modelling and assessment has demonstrated that the predicted ground level environmental concentrations of pollutants in the area even at a maximum will not compromise any Air Quality Objectives, then we are satisfied that the operation of the Installation will not compromise the integrity of the above habitat sites.

3. Environmental Management System

The applicant reports that the site's environment management system (EMS) has been approved by senior management and includes a commitment to legal compliance and continuous improvement and includes targets to monitor improvement. The EMS also covers management of process change, purchasing, capital approval and record keeping. As part of the EMS procedures, equipment will be serviced and maintained in accordance with the manufacturer's recommendations. Site infrastructure will be inspected in accordance with a written programme and will be maintained as necessary. Maintenance records will be kept updated.

The applicant reports that the environmental management procedures will be regularly audited. An annual audit will be undertaken to cover legal compliance (both environmental and health and safety), environmental improvements and systems compliance. In addition, site performance over a 12-month period will be assessed. This will be achieved by:

- Establishing compliance with legal commitments, e.g. Environmental Permit and Planning Permission;
- Establishing compliance with relevant legislation;
- Reviewing Environmental Management Programmes; and

- Confirming commitment to continual improvements.

The technically competent manager will be responsible for ensuring compliance with the environmental management procedures and all relevant legislative requirements. The operator confirms that the site EMS documentation will be in place and be made available for inspection prior to the commencement of site commissioning.

We are satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources will be available to the operator to ensure compliance with all the permit conditions.

4. Fugitive emissions to air, land and water

The IED specifies that plants must be able to demonstrate that they are designed in such a way as to prevent the unauthorised and accidental release of polluting substances into soil, surface water and groundwater. In addition, storage requirements for waste and for contaminated water must be arranged.

Activities on site will be operated in accordance with the site's management systems. This will include regular inspections and maintenance of equipment including odour abatement to ensure they continue to operate at optimum conditions.

Good housekeeping practices will be applied, such as minimising any dust generating activities on very dry or windy days; regular inspection and cleaning /sweeping of all paved areas on site and sheeting of vehicles delivering feedstock to the site and/or export of digestate from the site.

The waste treatment operations will benefit from a number of process control features and prevent the development of abnormal operating conditions. Operations will be controlled and monitored using the Supervisory Control and Data Acquisition (SCADA) system which creates documentation that can be accessed in remote locations. The system will provide a range of control and monitoring functions that automate and monitor actions throughout the plant. These procedures are designed to ensure the integrity of the plant throughout the life of the facility.

The operator reports that all areas within the waste reception and treatment areas will benefit from an impermeable surface which will prevent the release of potentially polluting liquids to surface water and groundwater. The AD tanks are constructed from robust steel, which are located on an engineered concrete base with surrounding side walls. The construction of the tanks will be supervised and quality assured. A Hazard and Operability (HAZOP) study and Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) assessment has been carried out for the project and includes details of the warning systems, escape facilities, emergency procedures and training requirements.

Secondary containment will be provided for all tanks containing liquids whose spillage could be harmful to the environment. The proposed site secondary containment consists of a 2.5-metre high concrete wall and is designed to hold a minimum of 110% of the capacity of the largest tank or 25% of total tank volume, whichever is the greater. For this Installation, the bund wall has been constructed using a "flood gate system" with two vehicular access points (one entry and one exit point), to enable tankers to draw off digestate from the digestate storage tanks located within the bund. The flood gates will always be kept in the closed position as a default. Personnel will cross into the bunded area by a set of stairs reducing the frequency of opening the flood gates. The gates will only be opened when a vehicle enters this part of the site (primarily to remove digestate). Each opening and subsequent closing of the gates will be monitored by a qualified member of the site personnel.

The applicant provided a Traffic Management Plan which shows that both food waste delivery and digestate disposal vehicles will be routed around the site in a one-way system to minimise the risk of collisions. The one-way system has been clearly defined through road markings and the use of one-way and no entry signs. The on-site travel distance of food waste delivery vehicles has also been minimised through a considered site layout which allows a streamlined traffic flow around a one-way system.

As shown on the Traffic Management Plan, a site speed limit of 5 miles per hour will be in place, which is clearly signed and enforced by site personnel. As part of the induction to the site, drivers will be notified of

the site speed limits. Any failure to adhere to these limits will, in the first instance, result in a verbal warning progressed through a yellow and red card for any further breaches. A red card will result in a ban from the site. Additionally, rights of way at junctions are clearly defined and stop signs are in place where required. To protect buildings and tanks from potential collisions, bollards and Armco fencing have been installed.

Containers used to store chemical reagents will be stored above a spill tray in dedicated, engineered bunds. Above-ground pipe runs will be fitted with cut-off valves so that they can be isolated and repaired in the event of a leak. The site infrastructure and plant will be inspected regularly and maintained as necessary to ensure it retains its integrity.

The applicant provided pre-commissioning certificates and additional information to confirm that the construction and integrity of the site secondary containment is fit for purpose and in accordance with industry standards. The secondary containment has been constructed and designed to reduce the risks of accidents and their consequences. We have set Improvement condition 3 which requires the operator to review the effectiveness of the secondary containment and any additional procedures required following commissioning.

Overall, the Environment Agency considers that the applicant has proposed appropriate measures to minimise any impact of fugitive emissions on nearby sensitive receptors. The permit conditions (3.2.1 to 3.2.3) are sufficient to ensure that emissions of substances not controlled by emission limits do not cause pollution. The operator is required to implement mitigation measures in line with an approved emissions management plan in the event activities on site are causing pollution.

Based upon the information provided in the Application, we are satisfied that appropriate measures are in place to prevent fugitive emissions to air, land and water.

5. Monitoring and Compliance

We have specified that monitoring should be carried out for the parameters listed in Schedule 3 table S3.1 in the permit, using the methods and to the frequencies in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with emission limit values (where specified).

Air

Annual monitoring of emissions (Table S3.1 in the permit) from the CHP engines and emergency flare will be undertaken by MCERTS accredited personnel using MCERTS approved methods. The Environment Agency has specified that monitoring of the CHP engines should be carried out in accordance with emission standards in LFTGN 08 - *Guidance for monitoring landfill gas engine emissions* (see Table 9 below) and the monitoring requirements of M2 - *Technical Guidance Note, Monitoring of stack emissions to air*. Sulphur dioxide emission limits for the CHP engines have been set in accordance with the data provided by the applicant and used in the dispersion modelling. We have set NOx emissions limits for the CHP engines based on the BAT options appraisal provided in the application.

Table 9 – Summary of emissions testing requirements for the CHP engines

Parameter	Emission standard (mg/m^3)
Nitrogen oxides	450
Sulphur dioxide	10
Carbon monoxide	1400
Total volatile organic compounds	1000

We have also specified in the permit that monitoring of the emergency flare should be undertaken 12 months following commissioning and then in the event the flare have been operational for over 10% of the year (876 hours). Guidance for monitoring enclosed landfill gas flares (LFTGN 05) sets out the emission standards for enclosed gas flares (see Table 10 below).

Table 10 – Summary of emissions testing requirements for the emergency flare

Parameter	Emission standard (mg/m^3)
Oxides of nitrogen as NO_2	150
Carbon monoxide	50
Total volatile organic compounds	10

Process monitoring

We have specified process monitoring of the AD biological treatment as a whole (see Table S3.3 in the permit). This includes monitoring of key digestion parameters, daily olfactory checks and structural integrity checks of the digesters and storage tanks. These monitoring checks are set to ensure that any malfunction of plant /equipment on site are detected early to reduce significant pollution.

6. Commissioning

The proposed Installation will undergo a period of commissioning before becoming fully operational. The IED and the conditions set out in the permit cover activities at the Installation once waste feedstock is first received on site. At the commissioning stage, operators are required to demonstrate that the plant (including the odour abatement system) is working effectively and that appropriate measures are in place to protect the environment and human health during this period (prior to the commencement of site operations).

The applicant provided a commissioning plan which included the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the measures to be taken to protect the environment and report to us in the event that actual emissions exceed expected emissions. As the impact of odour emissions was the main concern during the determination, we expect the applicant to pay particular attention to this issue in the commissioning plan.

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: • Director of Public Health (Hartlepool Borough Council) • Hartlepool Borough Council (Environmental Health Department) • Hartlepool Borough Council Hartlepool Borough Council (Planning Authority) • Public Health England • Network Rail • Health & Safety Executive • National Grid 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 RGN 2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation' and 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.
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 and baseline reporting under the Industrial Emissions Directive.
Biodiversity, heritage,	The application is within the relevant distance criteria of a site of heritage,

Aspect considered	Decision
landscape and nature conservation	landscape or nature conservation, and/or protected species or habitat. 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. We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified (see Key Issues section). We have consulted Natural England on our SSSI assessments, and taken their comments into account in the permitting decision.
Environmental risk assessment	
Environmental impact assessment	In determining the application, we have considered the Environmental Statement. We have also considered the planning permission and the committee report approving it.
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may be categorised as acceptable.
Operating techniques	
General operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes – Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013) and H4 – Odour Management and we consider them to represent appropriate techniques for the facility. The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.
Operating techniques for emissions that do not screen out as insignificant	Emissions of nitrogen oxides cannot be screened out as insignificant. We have assessed whether the proposed techniques are BAT (see Key Issues section). The proposed techniques/ emission levels for emissions that do not screen out as insignificant are in line with the techniques and benchmark levels contained in the technical guidance 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.
Operating techniques for emissions that screen out as insignificant	Emissions of sulphur dioxide, carbon monoxide and total volatile compounds (VOCs) have been screened out as insignificant, and so we agree that the applicant's proposed techniques are BAT for the Installation. We consider that the emission limits included in the Installation permit reflect the BAT for the sector.
Odour management	We have reviewed the odour management plan in accordance with our guidance on odour management. We consider that the odour management plan is satisfactory (see Key Issues section).

Aspect considered	Decision
Permit conditions	
Raw materials	We have specified limits and controls on the use of fuels as required by the Sulphur Content of Liquid Fuels (England and Wales) (Amendment) Regulations 2014.
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 because they have the necessary infrastructure, operating systems and technical capability to manage these wastes in an appropriate manner. The waste types can be treated via anaerobic digestion as they are included in the revised Anaerobic Digestate Quality Protocol (ADQP) and the Environment Agency biowaste treatment standard rules set.
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme (see Key Issues section).
Emission limits	We have decided that emission limits should be set for the parameters listed in the permit (see Key Issues). The following pollutants (nitrogen oxides, sulphur dioxide, carbon monoxide, total VOCs) have been identified as being emitted in significant quantities and ELVs based on BAT have been set for those substances. Emission limit values have been set for these pollutants with respect to air. It is considered that the ELVs described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.
Monitoring	We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified (see Key Issues section). These monitoring requirements have been imposed in order to demonstrate compliance with the conditions of the permit for operations requiring the management of air emissions. We made these decisions in accordance with *LFTGN 08: Guidance for monitoring landfill gas engine emissions* and LFTGN 05: *Guidance for monitoring enclosed landfill gas flares* which are considered the most appropriate TGN for this activity. 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. As the monitoring of point source emissions to air is only required annually, reporting is also required annually. Reporting forms have been prepared to facilitate reporting of data in a consistent format. These reporting requirements are deemed sufficient and proportional for the Installation. We made these decisions in accordance with the requirements of the Industrial Emissions Directive (IED).
Operator competence	
Management system	There is no known reason to consider that the operator will not have the

Aspect considered	Decision
	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 and National Enforcement Database has/have 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.

Consultation

The following section summarises the responses to consultation with other organisations and our notice on GOV.UK for the public and the way in which we have considered these in the determination process. Newspaper advertising is only carried out for certain application types, in line with our guidance. The Application has been advertised and consulted upon in accordance with the Environment Agency's Public Participation Statement. Copies of all consultation responses have been placed on the Environment Agency Public Register.

The Application was advertised on the Environment Agency website (GOV.UK) and Citizen Space from 1 September 2017 to 29 September 2017.

Responses from organisations listed in the consultation section

Representation received from Public Health England
Based on the information contained in the application supplied to us, Public Health England has no significant concerns regarding the risk to the health of the local population from the installation. This consultation response is based on the assumption that the permit holder shall take all appropriate measures to prevent or control pollution, in accordance with the relevant sector guidance and industry best practice.
Summary of actions taken or show how this has been covered
No further action. The proposed Installation will be operated in accordance with BAT to prevent or control pollution as specified in our technical guidance notes: Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013) and H4 – Odour Management.

Representation received from Cleveland Fire Brigade
Cleveland Fire Brigade offers no representations regarding the development as proposed.
Summary of actions taken or show how this has been covered
No further action.

No representations received from:
• Hartlepool Borough Council (Environmental Health Department) • Hartlepool Borough Council Hartlepool Borough Council (Planning Authority) • Network Rail • Health & Safety Executive • National Grid • Members of the Public