

Permitting decisions

Bespoke permit

We have decided to grant the permit for Whitchurch Biogas AD Plant operated by Advantage Biogas Limited. The permit number is [EPR/JP3431RD/A001](#).

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; and
- shows how we have considered the [consultation responses](#).

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

Read the permitting decisions in conjunction with the environmental permit. The introductory note summarises what the permit covers.

Key issues of the decision

Assessment of impact of air emissions on ecological receptors

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

- Brown Moss SAC
- Fenn's, Whixall, Bettisfield, Wem and Cadney Mosses SAC
- Midland Meres and Mosses Phase 1 Ramsar
- Midland Meres and Mosses Phase 2 Ramsar

The following Site of Special Scientific Interest is located within 2 km of the Installation:

- Brown Moss (SSSI)

Assessment of designated habitat sites and Site of Special Scientific Interest (SSSI)

The level of risk from the pollutants identified is dependent on the magnitude of the emission, its dispersion, existing and predicted pollutant concentrations, and the concentration at which the pollutants have the potential to affect the environment.

The magnitude of emissions from the installation is based on the maximum allowed under the Industrial Emissions Directive and Medium Combustion Plant Directive Emission Limit Values, i.e. is a conservative approach. The dispersion of emissions is the subject of detailed modelling by the applicant. This modelling leads to predicted Process Contributions (PC) for each pollutant, i.e. an estimate of the impact of the installation within the habitat's site (at the point of maximum impact). Suitably justified background concentrations of pollutants are given by the applicant, on the basis of existing sources /measurements. Addition of the background concentration to the PC gives rise to a Predicted Environmental Concentration (PEC) for each pollutant. These emissions levels, dispersion modelling, PCs, backgrounds and PECs have been checked by the Environment Agency Air Quality Permitting Technical Specialists and have been found to be reliable.

The applicant also identifies threshold levels of pollutants in the environment, below which an adverse effect is not expected. These environmental standards (ES) are expressed as critical levels and critical loads, as follows:

- Critical levels (CLe) are defined as gaseous concentrations of pollutants in the atmosphere above which direct adverse effects on receptors, such as human beings, plants, ecosystems or materials, may occur according to present knowledge.
- The critical load (CLo) relates to the quantity of pollutant deposited from air to the ground. It is defined as a quantitative estimate of exposure to one or more pollutants below which significant harmful effects on sensitive elements of the environment do not occur according to present knowledge.

Critical levels and critical loads are dependent on the receptors present, which may be affected by atmospheric pollution. The applicant has identified appropriate critical levels and critical loads for the European protected sites, on the basis of receptors found within the 10 km screening distance of the PPP.

The applicant's assessment comprises dispersion modelling of emissions to air from the operation of the anaerobic digestion facility and the impact of emissions on nearby sensitive habitat /conservation sites.

This assessment predicts the potential effects on local air quality from the anaerobic digestion facility's stack emissions using the Breeze AERMOD 8.1.0.17 dispersion model, which is a commonly used computer model for regulatory dispersion modelling. The model used 5 years of meteorological data between 2013 and 2017, collected from the weather station at Shawbury, located 18 km south of the anaerobic digestion facility. The applicant considered this station as the most suitable source of meteorological data due to its proximity to the installation. The impact of the terrain surrounding the site upon plume dispersion was considered in the dispersion modelling.

A single model scenario (combustion of biogas in the four CHP engines) has been assessed which reflects the 'normal' operation of the anaerobic digestion facility. Manufacturer emission limits have been assumed for the purposes of the modelling assessment and the plant is assumed to be operating at full load for the entire year (8,760 hours per year).

The following tables summarise the critical levels/critical loads, backgrounds, PCs, PECs for the area and the installation under consideration. The PC is given as the highest concentration predicted for the habitat sites.

The applicant reports that the prediction of the impacts at the Brown Moss SAC is difficult as the floating water plantain is a water species. For this reason there is a stated Nutrient Nitrogen Empirical Critical Load 3-10 kg N/ha/yr but no acid critical load for this site.

Air Pollution Information System (APIS) states that:

'This critical load only applies if the interest feature is associated with softwater oligotrophic or dystrophic lakes at the site. If the feature is not depending on these lake types, there is no comparable critical load available. The critical load for C1.1 and C1.4 is 3-10 kgNha-1yr-1. The lower end of the range is intended for boreal and alpine lakes, and the higher end of the range for Atlantic softwaters. Site specific advice should be sought from the conservation agencies as to which part of the range is relevant. Note that the critical load should only be applied to oligotrophic waters with low alkalinity with no significant agricultural or other human inputs.'

The applicant reports that as the Brown Moss SAC is not a softwater oligotrophic or dystrophic lake and has significant agricultural and other human inputs, this critical load is therefore not appropriate for this habitat site. The applicant states that the most appropriate critical load is that for raised and blanket bogs which is 5-10 N kg/ha/yr. We have presented the results using both critical loads in this report.

Brown Moss SAC

Pollutant	Critical Level (CLe) ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of CLe	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % CLe
Direct Impacts						
NOx Annual mean	30	5.6	0.5	1.6	6.1	20.3
NOx Daily mean	75	15.8	7.6	10.1	23.4	31.2
SO ₂	20	--	0.17	0.85	--	--
Deposition Impacts						
Pollutant	Critical Load (CLO) [Note 1]	Background	Process Contribution (PC)	PC as % of CLO	Predicted Environmental Concentration (PEC)	PEC as % CLO
N Deposition (kg N/ha/yr)	3-10	11.9	0.08	2.6	11.98	399.3
	5-10 (Raised	11.9	0.08	1.6		239.6

Pollutant	Critical Level (CLe) ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of CLe	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % CLe
	<i>and blanket bogs</i>)					
Acidification (keq/ha/yr)	No critical load	1.0	0.03	--	--	--

Note 1 – Critical load on APIS is given as a range. There is no specific critical load given for Brown Moss SAC. The lower critical load has been used in this assessment as a precautionary approach.

For direct impacts, the NO_x and sulphur dioxide annual and daily PCs exceed 1% and 10%, respectively of the relevant critical levels and as such do not screen out as insignificant. The annual and daily PECs are less than 100% of the respective critical levels so it can be concluded that direct impact is not significant at the Brown Moss SAC.

For deposition impacts, nutrient nitrogen PCs exceed 1% of the lower critical load and so do not screen out as insignificant. The background already significantly exceeds the CLo and the PECs are over 100% at the Brown Moss SAC. This means that further assessment is required. Acid deposition impacts are negligible at this site.

Fenn's Whixall, Bettisfield, Wem & Cadney Mosses SAC

Pollutant	Critical Level (CLe) ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of CLe	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % CLe
Direct Impacts						
NO _x Annual mean	30	--	0.03	0.1	--	--
NO _x Daily mean	75	--	0.89	1.2	--	--
SO ₂	20	--	0.01	0.05	--	--
Deposition Impacts						
Pollutant	Critical Load (CLo) [Note 1]	Background	Process Contribution (PC)	PC as % of CLo	Predicted Environmental Concentration (PEC)	PEC as % CLo
N Deposition (kg N/ha/yr)	5-10	22.6	0.00	--	--	--
Acidification (keq/ha/yr)	0.518	1.7	0.00	--	--	--

Note 1 – The lower critical load has been used in this assessment as a precautionary approach.

For direct and deposition impacts, the annual and daily PCs do not exceed 1% and 10%, respectively of the relevant critical levels and critical loads and as such emissions screen out as insignificant. No further assessment is required for Fenn's Whixall, Bettisfield, Wem & Cadney Mosses SAC.

Midland Meres and Mosses Phase 1 Ramsar

Pollutant	Critical Level (CLe) ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of CLe	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % CLe
Direct Impacts						
NOx Annual mean	30	--	0.05	0.16	--	--
NOx Daily mean	75	--	0.67	0.89	--	--
SO ₂	20	--	0.02	0.10	--	--
Deposition Impacts						
Pollutant	Critical Load (CLo) [Note 1]	Background	Process Contribution (PC)	PC as % of CLo	Predicted Environmental Concentration (PEC)	PEC as % CLo
N Deposition (kg N/ha/yr)	15-25	--	0.01	0.06	--	--
Acidification (keq/ha/yr)	<i>No critical load</i>	--	0.00	--	--	--
Note 1 – The lower critical load has been used in this assessment as a precautionary approach.						

Midland Meres and Mosses Phase 2 Ramsar

Pollutant	Critical Level (CLe) ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of CLe	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % CLe
Direct Impacts						
NOx Annual mean	30	--	0.10	0.3	--	--
NOx Daily mean	75	--	1.2	1.6	--	--
SO ₂	20	--	0.03	0.15	--	--
Deposition Impacts						
Pollutant	Critical Load	Background	Process Contribution	PC as %	Predicted Environmental	PEC as % CLo

Pollutant	Critical Level (CLe) ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of CLe	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % CLe
	(CLo) [Note 1]		(PC)	of CLo	Concentration (PEC)	
N Deposition (kg N/ha/yr)	15-25	--	0.01	0.06	--	--
Acidification (keq/ha/yr)	<i>No critical load</i>	--	0.00	--	--	--

Note 1 – The lower critical load has been used in this assessment as a precautionary approach.

For direct and deposition impacts, the annual and daily PCs do not exceed 1% and 10%, respectively of the relevant critical levels and critical loads and as such emissions screen out as insignificant. No further assessment is required for Midland Meres and Mosses Phase 1 and Phase 2 Ramsar.

In-combination assessment

Other developments which could potentially act in combination with the proposed development within a 10 km include:

- Applications for planning or permitting that are submitted but not yet determined;
- Developments that have planning permission and/or permits but are not yet (fully) operating;
- Developments that started operating after the most recent update of background levels.

We have identified 14 currently permitted IED sites within 10 km of the AD facility. Emissions from these sites have been accounted for in the existing background concentrations.

We consulted with Shropshire Council to check if they had any permissions, plans or projects which could act in combination with the proposed activity. Shropshire Council provided a list of sites generating reactive ammonia and NO_x within 10 km of Brown Moss SAC since 1 January 2018 (i.e. after background levels calculated on APIS website).

The results of the in-combination assessment is presented below:

Brown Moss SAC

Pollutant	Critical Level (CLe) ($\mu\text{g}/\text{m}^3$)	Background ($\mu\text{g}/\text{m}^3$)	Process Contribution (PC) ($\mu\text{g}/\text{m}^3$)	PC as % of CLe	Predicted Environmental Concentration (PEC) ($\mu\text{g}/\text{m}^3$)	PEC as % CLe
Direct Impacts						
NO _x Annual mean	30	5.6	0.6	2.0	6.2	20.6
SO ₂	20	--	0.16	0.8	--	--
NH ₃	3	4	0.1	3.3	4.1	136.6
Deposition Impacts						
Pollutant	Critical Load (CLo) [Note 1]	Background	Process Contribution (PC)	PC as % of CLo	Predicted Environmental Concentration (PEC)	PEC as % CLo
N Deposition (kg N/ha/yr)	3-10	11.9	0.5	16.6	12.4	413.3
	5-10 <i>(Raised and blanket bogs)</i>	11.9	0.5	16.6		332.0
Acidification (keq/ha/yr)	<i>No critical load</i>	1.0	0.03	--	--	--
Note 1 – Critical load on APIS is given as a range. There is no specific critical load given for Brown Moss SAC. The lower critical load has been used in this assessment as a precautionary approach.						

For direct impacts, the NO_x and sulphur dioxide annual and daily PCs exceed 1% and 10%, respectively of the relevant critical levels and as such do not screen out as insignificant. The annual and daily PECs for NO_x and sulphur dioxide are less than 100% of the respective critical levels so it can be concluded that direct impact from these pollutants is not significant at the Brown Moss SAC.

The applicant has included ammonia in the in-combination assessment. The results from the above table shows that the impact of ammonia exceeds the PEC which is over 100%. This demonstrates that ammonia levels are exceeding high and this has an impact on the Brown Moss SAC. Ammonia is not released from the anaerobic digestion facility.

For deposition impacts, nutrient nitrogen PCs exceed 1% of the lower critical load and the PECs are over 100% at the Brown Moss SAC. The background already significantly exceeds the critical load.

Brown Moss SAC is located in a rural area and surrounded by agricultural lands. The nutrient nitrogen background concentrations are significantly high at the Brown Moss SAC and significantly exceeds the critical load for floating water plantains and/or bogs. According to APIS source attribution, the main nitrogen nutrient contribution to the site comes from livestock (51%), fertiliser application /landspreading (7%) and road transport (5%). Whild (2007) found that the site is susceptible to other pressures, including diffuse

nutrient loading from surrounding land and septic tanks, water level fluctuation and atmospheric pollution. It no longer has the plant diversity that it formerly had.

In the determination of the planning permission for this facility, Natural England stated in their letter dated 30 April 2014 (Ref: 117097) that:

- *the proposal is not necessary for the management of the European site*
- *the proposal is unlikely to have a significant effect on any European site, and can therefore be screened out from any requirement for further assessment*
- *when recording your HRA we recommend you refer to the following information to justify your conclusions regarding the likelihood of significant effects.*
- *emissions resulting from the anaerobic digestion process are unlikely to have a significant effect beyond 500 metres from the application site and Brown Moss appears to be beyond this distance at approximately 1 kilometre from the application site.*

Shropshire Council carried out an appropriate assessment and also concluded that there was no likely significant effect on the Brown Moss SAC due to no pathways for an effect.

In the 2016 planning permission variation to increase the CHP engines from two to four, Shropshire Council made reference to the appropriate assessment carried out in 2014 and concluded that the results of that appropriate assessment were still valid.

The facility has been burning biogas derived from energy crops which does not require an environmental permit. The acceptance of animal manure as feedstock for digestion with energy crops **will not change** the composition of the biogas being combusted. There are no releases of ammonia from site operations. As a result of this, the process contribution from the facility is negligible.

Conclusion

Even though the nutrient nitrogen process contributions from the installation exceeds the 1% insignificance criterion of the critical load, due to the conservative approach taken by the applicant, the small PC in relation to the background and the type and distribution of sensitive feature (*L. natans*), we are satisfied the emissions from this site are unlikely to result in a significant impact on the special features of Brown Moss SAC.

Our assessment is based on the following points:

- The composition of the biogas burned by the CHP engines from the acceptance of animal manure will not differ from biogas produced under the existing operations at the site (i.e. combustion of biogas with energy crops as feedstock). Biogas produced in an anaerobic digester is typically composed of methane (50-75%) and carbon dioxide (25-50%). Depending on the feedstock, biogas can also contain significant amounts of hydrogen sulphide (up to 10-30,000 ppm), water (0-10%) and traces of other pollutants such as hydrogen (0.01-5%) and ammonia (0.01-2.5 mg/m³). The combustion of ammonia leads to the formation of nitrous oxide (NO_x) in the exhaust. Ammonia concentrations are monitored in the digesters; any trace ammonia in the biogas is usually separated when the biogas is dried by cooling, as ammonia solubility in water is high.

Emissions from the combustion of biogas derived from the anaerobic digestion of energy crops (**existing site operations**) is not different from the combustion of biogas derived from energy crops and manure (**proposed site operations**). **This means that emissions are not changing** from existing site operations which commenced in 2014.

- Our assessment shows that nutrient nitrogen contribution exceeds the 1% insignificance criterion slightly at some locations at the habitat site. No population of floating water plantains have been identified in this area from previous research and existing records.
- The process contribution is a small percentage of the existing background which is significantly exceeded. The high background concentrations of nutrient nitrogen is predominantly as a result of agricultural activities – intensive farming. The plant is a combustion plant with no releases of

ammonia to air.

- The air quality report is based on the worst case scenario and therefore it is highly conservative. The meteorological data shows that the prevailing wind is north easterly, hence away from the Brown Moss SAC.
- All in-combination effects for sites which are already constructed or have been operational have been included in the background concentration.
- In-combination effects for new plans or projects have been considered and can be shown not to have a significant effect.

In summary as the PCs are only slightly greater than 1% of the environmental standard and do not contribute significantly to the existing background, we are satisfied that the proposals will not impact significantly on the features of the site.

We undertook an appropriate assessment (Stage 2) and consulted Natural England on 9 December 2019. Natural England did not respond with any comments by the deadline of 6 January 2020. We have proceeded with the determination of the application as we have not received any objections and/or concerns from Natural England from the original deadline date until the permit issue date (13 January 2020).

Assessment of other conservation sites

The following non-statutory sites are located within 2 km of the Installation:

- Brown Moss (Local Nature Reserve)
- Stagg's Brook (Local Wildlife Site)
- Edgeley Road (Local Wildlife Site)

We reviewed the applicant's assessment 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 site is not likely to cause significant pollution. The applicant is required to prevent, minimise and control emissions using BAT.

Management of site surface water

The applicant states that tanker deliveries will take place within the impermeable concrete bund, accessed by an entrance ramp. This area drains to surface water collection system via an oil interceptor. Oil spillages will be retained in the interceptor, and other liquid spillages will drain to the surface water pumping chamber. This chamber has an automatic level switch which enables the pump when a high level is reached inside the chamber. The surface water pumps to a surface water attenuation pond outside the bunded area. This pond has a manual discharge valve that will be opened manually by staff to release water to a local watercourse once water quality testing has taken place.

We carried out a site visit on 1 August 2019 to examine the existing site infrastructure and key parts of the treatment process, including the site drainage. We observed that there was no clear separation of clean and dirty water within the bunded area.

The Waste Treatment BREF describes "waste water" or "dirty water" as run-off water that has fallen on storage and/or treatment areas, and of washing water that is used to clean plant /equipment and surfaces. This includes process waters such as liquors, wash down water, leachate and /or digestate.

The BREF describes "clean" water as run-off water from roofs or from areas that are not used for storing and treating waste. This water stream may be discharged directly to the environment.

As there is no clear separation of clean and dirty water within the bunded area, (and hence a potential that there could be a mixture of uncontaminated water and waste water), we have applied the BAT-AELs for

direct discharges to a receiving water body at this site as specified in the Waste Treatment BAT Conclusions (see below).

Point source emissions to water (other than sewer) and land – emission limits and monitoring requirements	
Parameter	Emission limit value (including unit)
Oil or grease	No visible oil or grease
Total organic carbon (TOC) ^[Note 1]	60 mg/l
Chemical oxygen demand (COD) ^[Note 1]	125 mg/l
Total nitrogen	25 mg/l
Total phosphorus	2 mg/l
Total suspended solids	30 mg/l
pH	6-9
Note 1 – Either TOC or COD can be monitored. TOC is the preferred option, because its monitoring does not rely on the use of very toxic compounds.	

Noise impact assessment

The application contained a noise impact assessment which identified local noise-sensitive receptors, sources of noise at the Installation and noise attenuation measures. This involved the calculation of resultant impact using three individual scenarios of noise emissions from externally located fixed plant equipment and on site transport sources/heavy plant equipment which could likely affect the nearest noise sensitive receptor/residential dwelling. Measurements were taken of the prevailing ambient noise levels to produce a baseline noise survey and an assessment was carried out in accordance with BS 4142:2014 to compare the predicted plant rating noise levels with the established background levels.

The applicant's assessment concluded that the predicted/calculated daytime, evening and night-time noise levels would not exceed the existing background sound levels provided the additional mitigation measures in this report are implemented. Therefore, noise should have a low adverse impact, in accordance with BS4142:2014.

We conducted an audit on the applicant's noise impact assessment and we agree with the assumptions and conclusion – we consider that it is unlikely that the noise impacts would have an adverse impact on sensitive receptors. We note that the nearest receptor (Broughall Fields Farmhouse) is occupied by the landowner. Although we consider that the impacts are low risk (with the mitigation measures), we have included improvement condition 1 (see Table S1.3 in the permit) which requires the operator to implement the three recommendations in the Noise Impact Assessment Report DYN010814_2A/5 Rev 1 (dated February 2019). The report must also contain information to demonstrate that the barrier provides the attenuation predicted in the Noise Impact Assessment Report DYN010814_2A/5 Rev 1 (dated February 2019).

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 noise and vibration and to prevent pollution from noise and vibration outside the site.

Environmental management system (EMS)

The applicant provided a summary of the EMS as part of the determination. A formal EMS will be developed prior to the commencement of operations with waste to ensure that:

- environmental risks and impacts are managed proactively;
- all legislative requirements are complied with; and

- procedures are in place to enable timely and effective response to environmental incidents should they occur.

The operator has taken note of the Environment Agency AD site assessment spreadsheet tool when developing the management system for the site to ensure compliance with the parameters.

The operator will ensure that the site is attended for the required number of hours by a holder of a suitable WAMITAB award. Cover arrangements will also be established to ensure that the necessary attendance takes place even during staff holiday and sick periods.

The site staff team includes a full-time site manager (WAMITAB holder), and three full time site operatives. The site team will also be supported by the central team as needed. The operator also operates a number of other plants in their portfolio and will have the facility to move staff between sites for cover arrangements if required/suitable. The staff team will be given support from a biologist who is qualified to degree level and will be able to oversee sampling activities on the site. All samples sent to third party facilities for analysis will be sent to a suitably registered or accredited laboratory.

The operator wishes to apply for PAS110:2014 status if any agriculturally based wastes other than manures are taken at the site or on a voluntary basis for quality purposes and therefore intends to implement the quality management system required for this certification.

The EMS includes procedures for reporting, documenting and investigating incidents, near misses, complaints, and non-compliances. The management system includes procedures for regular maintenance checks/activities on plant machinery and infrastructure to control identified high risk activities, and external and internal audit systems. The site will also carry a supply of critical spares to enable timely response to breakdown and the need for repair.

All staff employed at the site will have job descriptions that will define the skills and competencies required to carry out the required roles. These clearly defined roles will be the basis for a staff training needs assessment, which will form the basis of the staff training plan for the site.

All staff will receive training that will enable them to understand the regulatory context in which the plant is operating, and the impact that their own role may have on compliance with the permit. All staff will be trained to develop an awareness of the potential environmental impacts of the operations on site, and in the reporting procedures for incident and near misses.

The training needs/information sharing requirement of contractors visiting the site will be considered within the training needs analysis for the site, and systems set up accordingly to ensure that contractors are equipped with enough training and knowledge to undertake their activities on site in a manner that is in line with the operator's systems for management of environmental risk at the site.

The operator will produce a site closure and decommissioning programme outlining the measures that will be carried out in the event of site closure to ensure that the site is left in a state that addresses any subsequent risk to the environment arising from this process.

We have set pre-operational condition 1 (see Table S1.4A in the permit) which requires the operator to provide a written copy of the EMS and to make available for inspection all EMS documentation prior to the commencement of site operations with waste feedstock.

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

Fugitive emissions to air, land and water

The Industrial Emissions Directive (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 system. This will include regular inspections and maintenance of equipment to ensure they continue to operate at optimum conditions.

The site is surrounded by a perimeter fence and has a lockable gate to the entrance. This gate will be closed and locked always when staff are not present on site. All vehicles and/or people entering the site will be received by the weigh bridge operator who will be present in this area while the site is open for deliveries.

The operator reports that road surfaces are concrete, so there is a low likelihood of generation of litter, mud and dust. Wheel washing facilities will be available on site if required. If the road surface becomes dry and more dust is being created, the road surface will be dampened down to minimise dust. Roads and concrete reception /yard areas will be swept and kept clean on a regular basis. An inspection will be made of all vehicles entering the site at the weigh bridge, and any concerns over mud on the wheels of incoming vehicles will be recorded and addressed with the supplier /haulier in question.

Following pasteurisation, digestate will be pumped to the separator balancing tank and then to the external separator which is mounted on a steel platform. The digestate will be passed through the separator to produce a liquid and solid fibre fraction. Separated solid digestate will fall from the end of the separator to a concrete clamp below, where it will be temporarily stored before being taken off site by tractor for further storage in a pile heap at the site of intended spreading. Liquid digestate will be transferred to two covered lagoons by a closed pipe system thereby reducing any associated odours. All digestate loading operations will be supervised by site staff. Loading of digestate will take place in a purpose built impermeable area adjacent to the lagoon. Spill kits and wheel washing facilities will be available in this area to aid immediate cleaning following any small spills.

The waste treatment operations has a number of process control features which prevents the development of abnormal operating conditions. Operations will be controlled and monitored using a 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 benefit from an impermeable surface which will prevent the release of potentially polluting liquids to surface water and groundwater. The two digesters are partially below ground concrete tanks situated on concrete bases and fitted with insulated cladding. Both digesters are fitted with leak detection systems. The tanks are monitored constantly by computerised system, and a series of alarms are operable to alert staff of malfunction in different areas. Tanks are subject to daily visual checks for leaks. All pipework within the bund is above ground and so can be inspected/monitored for state of repair. Any breach of containment of tanks would be contained within the bund.

A Hazard and Operability (HAZOP) study and Dangerous Substances and Explosive Atmospheres Regulations (DSEAR) assessment has been carried out and includes details of the warning systems, escape facilities, emergency procedures and training requirements. An accident management plan is also in place at the installation.

All cleaning chemicals will be stored with lids or caps secured. All cleaning chemicals will be stored in a purpose-built room to ensure substances are not exposed to conditions that could cause a reaction and spillages are contained. Small volumes of chemicals will be stored in the laboratory. Chemicals will be segregated as appropriate, and stored in secondary containers to catch any small spillages. Dosing chemicals will be stored in covered and secure chemical store.

Secondary containment will be provided for all tanks containing liquids whose spillage could be harmful to the environment. The proposed site secondary containment is designed to hold a minimum of 110% of the capacity of the largest tank and 25% of total tank volume. An inspection and maintenance schedule has been prepared for the facility. Daily visual inspections shall be undertaken by the operator. All concrete work will be checked for cracks and all joint sealant shall be checked for adhesion to the concrete and shrinkage. Any issues identified during the daily inspections will be assessed by an appropriately qualified engineer and recorded on the daily check sheet as part of the management system.

The applicant provided additional information in the form of a report to confirm that the construction and integrity of the site secondary containment is fit for purpose and in accordance with industry standards. The report concluded that the bunds are compliant to current design standard Eurocode 7 and CIRIA C736

achieving a slope stability factor of safety of 1.5, based on the assumed engineered properties from the soil samples.

However the report recommended that the bund must be extended behind the liner at the corner of silage clamp 1 and repairs are to be undertaken to the slab around the CHP engines. We have therefore set pre-operational condition 2 (see Table S1.4A in the permit) which requires the operator to submit a report which shows that the recommendations within the Bund Investigation Works Report GGP28079-02 (dated August 2019) have been implemented. The report shall also confirm that works have been completed by a qualified engineer and in accordance with industry standards.

The applicant did not provide pre-commissioning certificates for the digestate storage lagoons during the determination as the lagoons have not been constructed. We have therefore set a pre-operational condition for future development (see Table S1.4B in the permit) which requires the operator to ensure that a review of the design, method of construction and integrity of the proposed digestate storage lagoon is carried out by a qualified structural or civil engineer prior to the use. The review shall compare the constructed lagoons against the standards set out in CIRIA C759 – *Livestock manure and silage storage infrastructure for agriculture or other relevant industry standard*. This will ensure that the storage lagoons are fit for purpose and have been constructed in accordance with industry standards.

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 the 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.

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	<p>The consultation requirements were identified in accordance with the Environmental Permitting Regulations and our public participation statement.</p> <p>The application was publicised on the GOV.UK website.</p> <p>We consulted the following organisations:</p> <ul style="list-style-type: none"> • Shropshire Council (Environmental Health Department) • Shropshire Council (Planning Authority) • Public Health England • Food Standards Agency • Local Fire & Rescue Service • Director of Public Health (Shropshire Council) • Health & Safety Executive • National Grid • Natural England <p>The comments and our responses are summarised in the consultation section.</p>
Operator	
Control of the facility	We are satisfied that the applicant (now the operator) is the person who will have control over the operation of the facility after the grant of the permit. The decision was taken in accordance with our guidance on legal operator for environmental permits.
The facility	
The regulated facility	We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN 2 'Defining the scope of the installation'. The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.
The site	
Extent of the site of the facility	The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility. The plan is included in the permit.

Aspect considered	Decision
Site condition report	The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.
Biodiversity, heritage, landscape and nature conservation	<p>The application is within the relevant distance criteria of a site of heritage, landscape or nature conservation, and/or protected species or habitat.</p> <p>We have assessed the application and its potential to affect all known sites of nature conservation, landscape and heritage and/or protected species or habitats identified in the nature conservation screening report as part of the permitting process. We consider that the application will not affect any sites of nature conservation, landscape and heritage, and/or protected species or habitats identified.</p> <p>We have consulted Natural England on our Habitats Regulations and SSSI assessments, and taken their comments into account in the permitting decision (see key issues section of this decision document).</p>
Environmental risk assessment	
Environmental risk	We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment, all emissions may be categorised as environmentally not significant.
Operating techniques	
General operating techniques	We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility. 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 and sulphur dioxide cannot be screened out as insignificant. We have assessed whether the proposed techniques are BAT. 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 BAT Conclusions, and ELVs deliver compliance with BAT-AELs.
Operating techniques for emissions that screen out as insignificant	Emissions of carbon monoxide and total volatile organic compounds (VOCs) have been screened out as insignificant, and so we agree that the applicant's proposed techniques is 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.

Aspect considered	Decision
Permit conditions	
Use of conditions other than those from the template	Based on the information in the application, we consider that we do not need to impose conditions other than those in our permit template.
Raw materials	We have specified limits and controls on the use of raw materials (straw, maize silage and whole crop rye) to ensure that the feedstock going into the digesters is free from contraries such as plastics and metals which may impede the digestion process.
Waste types	<p>We have specified the permitted waste types, descriptions and quantities, which can be accepted at the regulated facility.</p> <p>We are satisfied that the operator can accept these wastes for the following reasons:</p> <ul style="list-style-type: none"> • they are suitable for the proposed activities • the proposed infrastructure is appropriate • the environmental risk assessment is acceptable. <p>We made these decisions with respect to waste types in accordance with our Framework Guidance Note – <i>Framework for assessing suitability of wastes going to anaerobic digestion, composting and biological treatment</i> (July 2013).</p>
Pre-operational conditions	Based on the information in the application, we consider that we need to impose pre-operational conditions (see key issues section of this decision document).
Improvement programme	Based on the information on the application, we consider that we need to impose an improvement programme (see key issues section of this decision document).
Emission limits	<p>ELVs based on BAT have been set for the following substances.</p> <p><u>CHP engines (Existing medium combustion plants)</u></p> <p>Oxides of nitrogen – 500 mg/m³</p> <p>Sulphur dioxide – 350 mg/m³</p> <p>Carbon monoxide – 1,400 mg/m³</p> <p>Total VOCs – 1,000 mg/m³</p> <p><u>Emergency flare</u></p> <p>Oxides of nitrogen – 150 mg/m³</p> <p>Sulphur dioxide – 50 mg/m³</p> <p>Total VOCs – 10 mg/m³</p> <p>Annual monitoring of emissions will be carried out to MCERTS standards. The Environment Agency has specified that monitoring of the CHP engines should be carried out in accordance with the monitoring requirements of M2 – Monitoring of stack emissions to air. Guidance for monitoring enclosed landfill gas flares (LFTGN 05) sets out the emission standards for enclosed gas</p>

Aspect considered	Decision
	<p>flares.</p> <p><u>Emission limits for discharges to surface water</u></p> <p>See key issues section of this decision document.</p>
Monitoring	<p>We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified.</p> <p>These monitoring requirements have been imposed in order to demonstrate compliance with the conditions of the permit requiring the management of emissions to air.</p> <p>We made these decisions in accordance with the Waste Treatment BREF and BAT Conclusions and our guidance on Medium Combustion Plant and LFTGN 05: Guidance for monitoring enclosed landfill gas flares.</p> <p>Based on the information in the application, we are satisfied that the operator's techniques, personnel and equipment have either MCERTS certification or MCERTS accreditation as appropriate.</p>
Reporting	<p>We have specified reporting in the permit.</p> <p>Reporting will be required annually in line with the annual emissions monitoring, ensuring the operator is complying with the limits in their permit. Considering that the majority of the biogas generated at the facility is sent to the grid the site should not produce a high volume of air emissions. Annual reporting and monitoring is therefore sufficient. We made these decisions in accordance with the Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013).</p>
Operator competence	
Management system	<p>There is no known reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.</p> <p>The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.</p>
Technical competence	<p>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.</p>
Relevant convictions	<p>The Case Management System and National Enforcement Database 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.</p>
Financial competence	<p>There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.</p>

Aspect considered	Decision
Growth Duty	
Section 108 Deregulation Act 2015 – Growth duty	<p>We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.</p> <p>Paragraph 1.3 of the guidance says:</p> <p>“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”</p> <p>We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.</p> <p>We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.</p>

Consultation

The following summarises the responses to consultation with other organisations, our notice on GOV.UK for the public and the way in which we have considered these in the determination process. The application was advertised on the Environment Agency GOV.UK website from 21 May to 19 June 2019.

Response received from Public Health England
Brief summary of issues raised
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
The Installation will be operated in accordance with the Waste Treatment BREF /BAT Conclusions, our Draft Technical Guidance for Anaerobic Digestion (Reference LIT 8737, November 2013) and H4 – Odour Management.

No representations received from:
<ul style="list-style-type: none">• Shropshire Council (Environmental Health Department)• Shropshire Council (Planning Authority)• Food Standards Agency• Local Fire & Rescue Service• Director of Public Health (Shropshire Council)• Health & Safety Executive• National Grid• Members of the Public