

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Acorn Bioenergy Operations Limited

Three Maids AD Plant

Three Maids Hill

Winchester

Hampshire

SO21 2QG

Permit number

EPR/BP3326SD

Three Maids AD Plant

Permit number EPR/BP3326SD

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows:

This permit allows Acorn Bioenergy Operations Limited to operate an anaerobic digestion (AD) plant including the use of resultant biogas at the Three Maids Farm site.

The site sits within the northwest section of the intersection between the A34 dual carriageway and the A272 and is located approximately 4km north northwest of the city of Winchester (National Grid Reference: SU 46094 33959), occupying an area of approximately 4.453 hectares. The surrounding area is used principally for arable farming and grassland with pockets of protected Ancient Woodland. There is also a solar farm (120m north of the site), an area used for muck-away, recycling and aggregates processing (150m east), a pig farm (approximately 600m northwest), and Harestock Wastewater Treatment Works (1.6km south southeast).

The installation activity undertaken at the site falls under Schedule 1, Part 2, Section 5.4 A1 (b)(i) of the Environmental Permitting Regulations 2016 - recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 100 tonnes per day involving biological treatment of waste. In addition to the main installation activity, the site is also permitted to undertake the following Directly Associated Activities (DAAs):

- Storage of waste pending recovery or disposal
- Physical treatment for the purpose of recycling
- Steam and electrical power supply
- Emergency flare operation
- Gas upgrading
- Raw material storage
- Gas storage
- Digestate storage
- Carbon dioxide (CO₂) capture and storage
- Surface water collection and storage
- Emission abatement

The AD plant is designed to treat up to 94,000 tonnes per year of feedstocks. Feedstocks received at the site for the AD plant operations are energy crops (primarily maize and whole-crop silage), straw, animal manures and non-hazardous liquid wastes. The solid manures are stored in a dedicated Manure reception building fitted with abatement unit. The liquid manures are stored in a liquid feedstock tank (400m³). The waste feedstocks are macerated, screened, and mixed with recirculated digestate liquor and process water. Crops are ensiled on site in two silage clamps. The straw is treated in a Straw treatment building; the process involves wetting and chopping. Non-waste feedstocks are fed into the process via two external feed hoppers: a dry feed system into Primary digesters via an auger.

The digesters operate in the mesophilic temperature range at 38-45°C. There are two Primary digesters (PD1 & PD2) which operate in parallel. The two Primary digesters feed into the two Secondary digesters (SD1 & SD2). Both Secondary digesters feed into a single Tertiary digester (TD1). The Primary digesters each have an operational capacity of 5,520m³, the Secondary digesters and the Tertiary digester each have an operational capacity of 5,810m³.

Whole digestate from the Tertiary digester is then pasteurised in one of three 35m³ batch pasteurising tanks. Each batch is heated to over 70°C for a minimum of one hour prior to being cooled via a heat exchanger and then being pumped to the suspension buffer tank (808m³). Whole digestate from the suspension buffer tank

(808m³) is pumped to the 2 No. separators capable of separating up to 320 tonnes per day (t/d) whole digestate. Each of the separators is housed within covered bunker.

Separated liquor is pumped from the separator to either the 5,800m³ digestate storage lagoon, and/or the process water buffer tank (297m³), which feeds the premix system for the manure and the premix systems on the primary digesters.

The fibre is collected below the separators underneath the covered bunker. Both the separated liquor and fibre digestate are used as a biofertiliser on nearby farms. The biogas is upgraded into biomethane and transported offsite for injection at a central gas to grid injection point. Carbon dioxide (CO₂) from the biogas is captured and upgraded to 99.9% purity. The treated/upgraded CO₂ is liquefied, transported for use in suitable industrial and commercial applications.

There are 2 Combined Heat and Power (CHPs) plants at the site, with an aggregated thermal input of 5.69 MWth. The CHPs are used in producing heat and electricity and are design to run on dual fuel (biogas and natural gas). Heat from the CHPs is used to maintain the temperature of the digesters and to provide heat to the pasteurisers. There is also a dual fuel emergency boiler (0.66MWt) which can burn biogas or biomethane (or natural gas) to provide heat for the AD process, if one or more of the CHPs is non-operational.

The manure reception building is fitted with fast acting roller shutter doors and emissions abatement plant.

There are no emissions to surface water or to sewer. Dirty water from the silage clamps and feeder loading area, separator bunker and digestate offtake point is collected and reused in the process. Water collecting within the secondary containment system and roofs is used within the AD process under normal operating conditions. Clean rainwater from the designated clean areas of the site including vehicle access and movement areas (via a full retention separator) and roofs may be discharged to ground via the underground crate system.

The status log of the permit sets out the permitting history, including any changes to the permit reference number.

Status log of the permit		
Description	Date	Comments
Application EPR/BP3326SD/A001	Duly made 03/07/24	Application for an anaerobic digestion facility with combustion of biogas.
Additional information received	03/10/24	Amended copy of the application forms and supporting documents, including H1 assessment and modelling files, BAT assessment, odour management plan, EMS, containment and drainage reports etc.
	15/04/25	Response to questions 1 - 10 of the Request for Further Information dated 14/04/2025, providing additional information with regards to the EMS, BAT assessment and bioaerosol risk assessment.
	19/05/25	Updated air quality modelling files.
Response to the Schedule 5 Notice dated 14/05/2025	27/05/25	Response to questions 1 - 21 of the Schedule 5 Notice including the updated version of the EMS, BAT assessment, bioaerosol risk assessment, drainage impact assessment, containment report, odour management plan, accident management plan and air quality impact assessment, piping and instrumentation drawings and secondary containment checking and emptying procedures.
Additional information received	24/07/25	Updated site emission plan and layout plan.
Additional information received	28/07/25	Confirmation of Technical Competency.
Permit determined	01/08/25	Permit issued to Acorn Bioenergy Operations Limited.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/BP3326SD

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2016

Acorn Bioenergy Operations Limited ("the operator"),

whose registered office is

**58 Marylebone High Street
London
England
W1U 5HT**

company registration number 14266239

to operate an installation at

**Three Maids AD Plant
Three Maids Hill
Winchester
Hampshire
SO21 2QG**

to the extent authorised by and subject to the conditions of this permit.

Name	Date
Peter Maksymiw	01/08/2025

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

- 1.1.1 The operator shall manage and operate the activities:
- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
 - (b) using sufficient competent persons and resources.
- 1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.
- 1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Energy efficiency

- 1.2.1 The operator shall:
- (a) take appropriate measures to ensure that energy is used efficiently in the activities;
 - (b) review and record at least every four years whether there are suitable opportunities to improve the energy efficiency of the activities; and
 - (c) take any further appropriate measures identified by a review.

1.3 Efficient use of raw materials

- 1.3.1 The operator shall:
- (a) take appropriate measures to ensure that raw materials and water are used efficiently in the activities;
 - (b) maintain records of raw materials and water used in the activities;
 - (c) review and record at least every four years whether there are suitable alternative materials that could reduce environmental impact or opportunities to improve the efficiency of raw material and water use; and
 - (d) take any further appropriate measures identified by a review.

1.4 Avoidance, recovery and disposal of wastes produced by the activities

- 1.4.1 The operator shall take appropriate measures to ensure that:
- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
 - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
 - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.

- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).
- 2.1.2 The activities shall be undertaken in accordance with best available techniques.
- 2.1.3 All process plant and equipment shall be commissioned, operated and maintained and shall be fully documented and recorded in accordance with the manufacturer’s recommendations.

2.2 The site

- 2.2.1 The activities shall not extend beyond the site, being the land shown edged in green on the site plan at schedule 7 to this permit.

2.3 Operating techniques

- 2.3.1 The activities shall, subject to the conditions of this permit, be operated using the techniques and in the manner described in the documentation specified in schedule 1, table S1.2, unless otherwise agreed in writing by the Environment Agency.
- 2.3.2 If notified by the Environment Agency that the activities are giving rise to pollution, the operator shall submit to the Environment Agency for approval within the period specified, a revision of any plan or other documentation (“plan”) specified in schedule 1, table S1.2 or otherwise required under this permit which identifies and minimises the risks of pollution relevant to that plan, and shall implement the approved revised plan in place of the original from the date of approval, unless otherwise agreed in writing by the Environment Agency.
- 2.3.3 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.4 Waste shall only be accepted if:
- (a) it is of a type and quantity listed in schedule 2 table S2.2; and
 - (b) it conforms to the description in the documentation supplied by the producer and holder.
 - (c) the facility has sufficient free capacity to store and treat the waste.
- 2.3.5 The operator shall ensure that where waste produced by the activities is sent to a relevant waste operation, that operation is provided with the following information, prior to the receipt of the waste:
- (a) the nature of the process producing the waste;
 - (b) the composition of the waste;
 - (c) the handling requirements of the waste;
 - (d) the hazardous property associated with the waste, if applicable; and
 - (e) the waste code of the waste.
- 2.3.6 The operator shall ensure that where waste produced by the activities is sent to a landfill site, it meets the waste acceptance criteria for that landfill.
- 2.3.7 Waste pre-acceptance and acceptance procedures shall be undertaken in accordance with best available techniques.

2.3.8 For the following activities referenced in schedule 1, table S1.1 (AR4):

- (a) each MCP must be operated in accordance with the manufacturer's instructions and records must be made and retained to demonstrate this.
- (b) the operator must keep periods of start-up and shut-down of each MCP as short as possible.
- (c) there must be no persistent emission of 'dark smoke' as defined in section 3(1) of the Clean Air Act 1993.

2.4 Improvement programme

2.4.1 The operator shall complete the improvements specified in schedule 1 table S1.3 by the date specified in that table unless otherwise agreed in writing by the Environment Agency.

2.4.2 Except in the case of an improvement which consists only of a submission to the Environment Agency, the operator shall notify the Environment Agency within 14 days of completion of each improvement.

2.5 Pre-operational conditions

2.5.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.4 have been completed.

3 Emissions and monitoring

3.1 Emissions to water, air or land

3.1.1 There shall be no point source emissions to water, air or land except from the sources and emission points listed in schedule 3 table S3.1 and S3.2.

3.1.2 The limits given in schedule 3 shall not be exceeded.

3.1.3 Periodic monitoring shall be carried out at least once every 5 years for groundwater and 10 years for soil, unless such monitoring is based on a systematic appraisal of the risk of contamination.

3.2 Emissions of substances not controlled by emission limits

3.2.1 Emissions of substances not controlled by emission limits (excluding odour, but including ammonia) shall not cause pollution. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved emissions management plan, have been taken to prevent or where that is not practicable, to minimise, those emissions.

3.2.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution, submit to the Environment Agency for approval within the period specified, an emissions management plan which identifies and minimises the risks of pollution from emissions of substances not controlled by emission limits;
- (b) implement the approved emissions management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.2.3 All liquids in containers, whose emission to water or land could cause pollution, shall be provided with secondary containment, unless the operator has used other appropriate measures to prevent or where that is not practicable, to minimise, leakage and spillage from the primary container.

3.2.4 The operator shall implement a leak detection and repair (LDAR) programme to detect and mitigate the release of volatile organic compounds, including methane from diffuse sources.

3.3 Odour

- 3.3.1 Emissions from the activities shall be free from odour at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved odour management plan, to prevent or where that is not practicable to minimise the odour.

3.4 Noise and vibration

- 3.4.1 Emissions from the activities shall be free from noise and vibration at levels likely to cause pollution outside the site, as perceived by an authorised officer of the Environment Agency, unless the operator has used appropriate measures, including, but not limited to, those specified in any approved noise and vibration management plan to prevent or where that is not practicable to minimise the noise and vibration.
- 3.4.2 The operator shall:
- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to noise and vibration, submit to the Environment Agency for approval within the period specified, a noise and vibration management plan which identifies and minimises the risks of pollution from noise and vibration;
 - (b) implement the approved noise and vibration management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.5 Monitoring

- 3.5.1 The operator shall, unless otherwise agreed in writing by the Environment Agency, undertake the monitoring specified in the following tables in schedule 3 to this permit:
- (a) point source emissions specified in tables S3.1 and S3.2;
 - (b) process monitoring specified in table S3.3;
 - (c) bioaerosols monitoring specified in table S3.4.
- 3.5.2 The operator shall maintain records of all monitoring required by this permit including records of the taking and analysis of samples, instrument measurements (periodic and continual), calibrations, examinations, tests and surveys and any assessment or evaluation made on the basis of such data.
- 3.5.3 Monitoring equipment, techniques, personnel and organisations employed for the emissions monitoring programme and the environmental or other monitoring specified in condition 3.5.1 shall have either MCERTS certification or MCERTS accreditation (as appropriate), where available, unless otherwise agreed in writing by the Environment Agency.
- 3.5.4 Permanent means of access shall be provided to enable sampling/monitoring to be carried out in relation to the emission points specified in schedule 3 tables S3.1, S3.2 and S3.3 unless otherwise agreed in writing by the Environment Agency.
- 3.5.5 In the case of new medium combustion plant, the first monitoring measurements shall be carried out within four months of the issue date of the permit or the date when the MCP is first put into operation, whichever is later.
- 3.5.6 Monitoring shall not take place during periods of start up or shut down.

3.6 Bioaerosols

- 3.6.1 The operator shall take all appropriate measures, to prevent or where that is not practicable to minimise the release of bioaerosols. Emissions of bioaerosols from the operational activities shall not exceed the emission action levels specified in table S3.4.

3.6.2 The operator shall where the emission action levels are exceeded:

- (a) notify the Environment Agency and investigate and take remedial action;
- (b) submit to the Environment Agency for approval within the period specified, a bioaerosols management plan which identifies and minimises the risks of pollution from bioaerosols; and
- (c) implement the bioaerosols management plan from the date of approval and revise the plan periodically, unless otherwise agreed in writing by the Environment Agency.

3.7 Pests

3.7.1 The activities shall not give rise to the presence of pests which are likely to cause pollution, hazard or annoyance outside the boundary of the site. The operator shall not be taken to have breached this condition if appropriate measures, including, but not limited to, those specified in any approved pests management plan, have been taken to prevent or where that is not practicable, to minimise the presence of pests on the site.

3.7.2 The operator shall:

- (a) only use approved products for pest control;
- (b) treat pest infestations promptly;
- (c) reject pest-infected incoming waste;
- (d) if notified by the Environment Agency, submit to the Environment Agency for approval within the period specified, a pests management plan which identifies and minimises risks of pollution from pests;
- (e) implement the pests management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.8 Fire prevention

3.8.1 The operator shall take all appropriate measures to prevent fires on site and minimise the risk of pollution from them including, but not limited to, those specified in any approved fire prevention plan.

3.8.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to a risk of fire, submit to the Environment Agency for approval within the period specified, a fire prevention plan which prevents fires and minimises the risk of pollution from fires;
- (b) implement the fire prevention plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

3.8.3 The operator shall undertake a DSEAR assessment and maintain an accident management plan.

4 Information

4.1 Records

4.1.1 All records required to be made by this permit shall:

- (a) be legible;
- (b) be made as soon as reasonably practicable;
- (c) if amended, be amended in such a way that the original and any subsequent amendments remain legible, or are capable of retrieval; and

(d) be retained, unless otherwise agreed in writing by the Environment Agency, for at least 6 years from the date when the records were made, or in the case of the following records until permit surrender:

- (i) off-site environmental effects; and
- (ii) matters which affect the condition of the land and groundwater.

4.1.2 The operator shall keep on site all records, plans and the management system required to be maintained by this permit, unless otherwise agreed in writing by the Environment Agency.

4.1.3 The operator shall maintain a record of the type and quantity of fuel used and the total annual hours of operation of each MCP.

4.2 Reporting

4.2.1 The operator shall send all reports and notifications required by the permit to the Environment Agency using the contact details supplied in writing by the Environment Agency.

4.2.2 A report or reports on the performance of the activities over the previous year shall be submitted to the Environment Agency by 31 January (or other date agreed in writing by the Environment Agency) each year. The report(s) shall include as a minimum:

- (a) a review of the results of the monitoring and assessment carried out in accordance with the permit including an interpretive review of that data;
- (b) the annual production/treatment data set out in schedule 4 table S4.2; and
- (c) the performance parameters set out in schedule 4 table S4.3 using the forms specified in table S4.4 of that schedule.

4.2.3 Within 28 days of the end of the reporting period the operator shall, unless otherwise agreed in writing by the Environment Agency, submit reports of the monitoring and assessment carried out in accordance with the conditions of this permit, as follows:

- (a) in respect of the parameters and emission points specified in schedule 4 table S4.1;
- (b) for the reporting periods specified in schedule 4 table S4.1 and using the forms specified in schedule 4 table S4.4; and
- (c) giving the information from such results and assessments as may be required by the forms specified in those tables.

4.2.4 The operator shall, unless notice under this condition has been served within the preceding four years, submit to the Environment Agency, within six months of receipt of a written notice, a report assessing whether there are other appropriate measures that could be taken to prevent, or where that is not practicable, to minimise pollution.

4.2.5 Within 1 month of the end of each quarter, the operator shall submit to the Environment Agency using the form made available for the purpose, the information specified on the form relating to the site and the waste accepted and removed from it during the previous quarter.

4.2.6 The operator shall keep records of non-waste materials leaving the site, including the type of material, the batch number, the date of export off-site and the tonnage exported on that date. These records shall be maintained for at least 2 years.

4.2.7 The operator shall submit an annual report detailing the efficiency of removal of non-compostable and non-digestible materials from feedstock prior to processing and the level of contamination in the final recovered digestate and/or compost.

4.3 Notifications

4.3.1 In the event:

- (a) that the operation of the activities gives rise to an incident or accident which significantly affects or may significantly affect the environment, the operator must immediately—
 - (i) inform the Environment Agency,
 - (ii) take the measures necessary to limit the environmental consequences of such an incident or accident, and
 - (iii) take the measures necessary to prevent further possible incidents or accidents;
- (b) of a breach of any permit condition the operator must immediately—
 - (i) inform the Environment Agency, and
 - (ii) take the measures necessary to ensure that compliance is restored within the shortest possible time;
- (c) of a breach of permit condition which poses an immediate danger to human health or threatens to cause an immediate significant adverse effect on the environment, the operator must immediately suspend the operation of the activities or the relevant part of it until compliance with the permit conditions has been restored.

4.3.2 Any information provided under condition 4.3.1 (a)(i), or 4.3.1 (b)(i) where the information relates to the breach of a limit specified in the permit, shall be confirmed by sending the information listed in schedule 5 to this permit within the time period specified in that schedule.

4.3.3 Following the detection of an issue listed in condition 4.3.1, the operator shall review and revise the management system and implement any changes as necessary to minimise the risk of re-occurrence of the issue.

4.3.4 Where the Environment Agency has requested in writing that it shall be notified when the operator is to undertake monitoring and/or spot sampling, the operator shall inform the Environment Agency when the relevant monitoring and/or spot sampling is to take place. The operator shall provide this information to the Environment Agency at least 14 days before the date the monitoring is to be undertaken.

4.3.5 The Environment Agency shall be notified within 14 days of the occurrence of the following matters, except where such disclosure is prohibited by Stock Exchange rules:

Where the operator is a registered company:

- (a) any change in the operator's trading name, registered name or registered office address; and
- (b) any steps taken with a view to the operator going into administration, entering into a company voluntary arrangement or being wound up.

Where the operator is a corporate body other than a registered company:

- (a) any change in the operator's name or address; and
- (b) any steps taken with a view to the dissolution of the operator.

In any other case:

- (a) the death of any of the named operators (where the operator consists of more than one named individual);
- (b) any change in the operator's name(s) or address(es); and
- (c) any steps taken with a view to the operator, or any one of them, going into bankruptcy, entering into a composition or arrangement with creditors, or, in the case of them being in a partnership, dissolving the partnership.

4.3.6 Where the operator proposes to make a change in the nature or functioning, or an extension of the activities, which may have consequences for the environment and the change is not otherwise the subject of an application for approval under the Regulations or this permit:

- (a) the Environment Agency shall be notified at least 14 days before making the change; and
- (b) the notification shall contain a description of the proposed change in operation.

4.3.7 The Environment Agency shall be given at least 14 days' notice before implementation of any part of the site closure plan.

4.3.8 The operator shall notify the Environment Agency as soon as is practicable, in writing of any change of medium combustion plant.

4.4 Interpretation

4.4.1 In this permit the expressions listed in schedule 6 shall have the meaning given in that schedule.

4.4.2 In this permit references to reports and notifications mean written reports and notifications, except where reference is made to notification being made "immediately", in which case it may be provided by telephone.

Schedule 1 – Operations

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
AR1	S5.4 A(1) (b) (i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if the only waste treatment activity is anaerobic digestion) involving biological treatment.	R3: Recycling/reclamation of organic substances which are not used as solvents	From receipt of waste through to digestion and recovery of by-products (digestate). Anaerobic digestion of waste in 5 tanks followed by burning of biogas produced from the process. Waste types suitable for acceptance are limited to those specified in Table S2.2.
Directly Associated Activity			
AR2	Storage of waste pending recovery or disposal	R13: Storage of waste pending the operations numbered R1 and R3 (excluding temporary storage, pending collection, on the site where it is produced)	From the receipt of permitted waste to pre-treatment and despatch for anaerobic digestion on site. Storage of residual wastes from pre-treatment to despatch off-site for recovery. Storage of waste in an enclosed building or tanks fitted with appropriate odour abatement and on an impermeable surface with a sealed drainage system. Waste types suitable for acceptance are limited to those specified in Table S2.2.
AR3	Physical treatment for the purpose of recycling	R3: Recycling/reclamation of organic substances which are not used as solvents	From the receipt of waste to despatch for anaerobic digestion to despatch off site for recovery. Pre-treatment of waste consisting of shredding, sorting, screening, compaction, baling, mixing and maceration Treatment shall be on an impermeable surface with a sealed drainage system and within an enclosed building, fitted with appropriate odour abatement. Post-treatment of digestate including separation, screening to remove contraries, centrifuge or pressing. Post-treatment shall be on an impermeable surface with a sealed drainage system. Heat treatment (pasteurisation) of waste in 3 tanks for the purpose of recovery.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
			Gas cleaning by biological or physical (carbon filtration) or chemical scrubbing. Waste types suitable for acceptance are limited to those specified in Table S2.2.
AR4	Steam and electrical power supply	R1: Use principally as a fuel to generate energy	From the receipt of biogas produced at the on-site anaerobic digestion process to combustion with the release of combustion gases. Combustion of biogas and natural gas in 2 dual fuel combined heat and power (CHP) engine(s) with an aggregated thermal input of 5.69 MWth. Combustion of biogas in an auxiliary boiler with an aggregated thermal input of 0.66 MWth.
AR5	Emergency flare operation	D10: Incineration on land	From the receipt of biogas produced at the on-site anaerobic digestion process to incineration with the release of combustion gases. Use of an auxiliary flare required only during periods of breakdown or maintenance of the CHP engines, biogas upgrading plant and/or auxiliary boiler (in the event of unplanned maintenance or emergency only).
AR6	Gas upgrading	Upgrading of biogas to biomethane (including the removal of moisture and other substances such as carbon dioxide, hydrogen sulphide and Volatile organic compounds) for injection into the National Grid.	From the receipt of biogas produced at the on-site anaerobic digestion process to the removal of the gas via virtual pipeline vehicle prior to injection to the National Grid. This includes return of off-specification biomethane to be recombined with CO ₂ for further processing.
AR7	Raw material storage	Storage of raw materials including lubrication oil, antifreeze, propane, ferric chloride, activated carbon, diesel.	From the receipt of raw materials to despatch for use within the facility.
AR8	Gas storage	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage, pending collection, on the site where it is produced)	Storage of biogas produced from on-site anaerobic digestion of permitted waste in the roof space of digesters. From the receipt of biogas produced at the on-site anaerobic digestion process to despatch for use within the facility.
AR9	Digestate storage	R13: Storage of waste pending any of the operations numbered R1 to R12 (excluding temporary storage,	From the receipt of processed uncertified digestate produced from the on-site anaerobic digestion process to despatch for use off-site.

Table S1.1 activities			
Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex I and II operations	Limits of specified activity and waste types
		pending collection, on the site where it is produced)	Storage of processed uncertified liquid digestate in 1 storage tank or a covered storage lagoon. Storage of processed uncertified solid digestate in a building and on an impermeable surface with sealed drainage system.
AR10	CO ₂ capture and recovery	Separation of CO ₂ and CH ₄ by compression, cooling and drying system. CH ₄ is recirculated within biogas plant.	From the receipt of biogas produced at the on-site anaerobic digestion process to recovery of liquid CO ₂ . This includes the separation of CO ₂ and CH ₄ and the production of liquid CO ₂ . Storage of recovered CO ₂ in two 50m ³ enclosed tanks.
AR11	Surface water collection and storage	Collection and storage of uncontaminated roof and site surface water in a storage tank.	From the collection of uncontaminated roof water and site surface water to re-use within the facility or discharge off-site or to the ground via soakaway.
AR12	Emission abatement	Collection and treatment of air from the buildings or plant using abatement system – carbon filters, acid scrubbers, and ozone treatment, prior to release to atmosphere.	From the collection of air from site processes to treatment and release of treated air to atmosphere.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application EPR/BP3326SD/A001	Application forms B2 and B3, and all supporting documents referenced within the forms.	03/10/2024
Response to the Schedule 5 Notice dated 14/05/2025	Response to questions 1 - 21 of the Schedule 5 Notice, including the updated EMS, BAT assessment, bioaerosol risk assessment, drainage impact assessment, containment report, odour management plan, accident management plan and secondary containment checking and emptying procedures.	27/05/2025

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
Improvement condition to address methane slip emissions from gas engines burning biogas		
IC1	The operator shall submit a written plan for approval by the Environment Agency which establishes the methane emissions in the exhaust gas from engines burning biogas and or biomethane and compare these to the manufacturer's specification and benchmark levels.	6 months following the acceptance of waste specified in Table S2.2 for treatment on

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>The plan shall develop proposals to assess the potential for methane slip and take corrective actions where emissions of methane above the manufacturer's specification are identified.</p> <p>The operator shall establish methane emissions in the exhaust gas and methane slip using the following standards:</p> <ul style="list-style-type: none"> • EN ISO 25139 • EN ISO 25140 	site or other date as agreed in writing with the Environment Agency
Improvement condition for establishing a Leak detection and repair programme		
IC2	<p>The operator shall establish a site-specific leak detection and repair (LDAR) programme to detect and mitigate the release of volatile organic compounds, including methane from diffuse sources. The programme shall include, but not be limited to an LDAR survey, diffuse emissions source inventory and associated monitoring arrangements. The programme shall be submitted to the Environment Agency for approval.</p> <p>The programme shall take into account the appropriate measures for LDAR plans specified in Section 11.9 of <i>Environment Agency guidance, Biological waste treatment: appropriate measures for permitted facilities</i>.</p> <p>The operator shall also have regard to BS EN 17628 when designing the LDAR programme and consider the use of optical gas imaging cameras and/or application of 'sniffer' techniques according to BS EN 15446.</p>	6 months following the acceptance of waste specified in Table S2.2 for treatment on site or other date as agreed in writing with the Environment Agency
Improvement condition for review of effectiveness of abatement plant		
IC3	<p>The operator shall carry out a review of the gas upgrade plant (A7 and A8) and abatement plant on site, in order to determine whether the measures have been effective and adequate to prevent and where not possible minimise emissions released to air from the abatement stacks/vents (A6, A19, A20, A21), including but not limited to, hydrogen sulphide, odour and ammonia.</p> <p>The operator shall submit a written report to the Environment Agency following this review for assessment and approval.</p> <p>The report shall include but not limited to the following aspects:</p> <ul style="list-style-type: none"> • Full investigation and characterisation of the waste gas streams. • Full assessment of the gas upgrade plant to ensure that there is insignificant release of VOCs and hydrogen sulphide from the plant • Abatement stack monitoring results (not limited to odour and ammonia) • Abatement process monitoring results (not limited to odour and ammonia) • an assessment report on the impact of the emissions on the habitat and SSSI sites • Details of air quality quantitative impact assessment including modelling and a proposal for site-specific "action levels" (not limited to odour concentration, hydrogen sulphide and ammonia). If the modelling shows potential long or short-term impacts from the emissions is having significant/adverse impact on any of the receptors (including habitat and SSSI sites), the operator shall submit improvement plan to reduce the impacts of the substances identified to the Environment Agency for approval. • Odour monitoring results at the site boundary 	12 months following the acceptance of waste specified in Table S2.2 for treatment on site or other date as agreed in writing with the Environment Agency

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<ul style="list-style-type: none"> Records of odour complaints and odour related incidents Recommendations for improvement including the replacement or upgrading the abatement plant Timescales for implementation of improvements to the abatement plant. <p>The operator shall implement the improvements in line with the timescales as approved by the Environment Agency.</p>	

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
Pre-operational condition for suitability of site secondary containment	
PO1	<p>Prior to the acceptance of waste feedstock at the site, the operator shall submit a report confirming that the construction of the secondary containment has been completed and carried out by a competent person (qualified civil or structural engineer) in line with the plans approved in the application reference EPR/BP3326SD/A001.</p> <p>The construction shall be undertaken in accordance with the methodology detailed in CIRIA C736 - Containment Systems for the Prevention of Pollution - secondary, tertiary and other measures for industrial and commercial premises or other relevant industry standard.</p> <p>The report shall include:</p> <ul style="list-style-type: none"> physical condition of the constructed secondary containment the suitability for providing containment when subjected to the dynamic and static loads; any work required to ensure compliance with the standards detailed in CIRIA C736 or other relevant industry standard; and a maintenance and inspection regime <p>The written report of the construction shall be submitted to the Environment Agency for approval. Any remedial action taken to ensure that the secondary containment meets the CIRIA C736 standards shall be included in the report.</p>
Pre-operational condition for suitability of site digestate /leachate storage lagoon	
PO2	<p>Prior to the acceptance of waste feedstock at the site, the operator shall submit a report confirming that the design, construction and integrity of the digestate storage lagoon is carried out by a competent person (qualified civil or structural engineer) in line with the plans approved in the application reference EPR/BP3326SD/A001.</p> <p>The construction shall be undertaken in accordance with the methodology detailed in CIRIA C736 - Containment Systems for the Prevention of Pollution - secondary, tertiary and other measures for industrial and commercial premises or other relevant industry standard.</p> <p>The report shall include:</p> <ul style="list-style-type: none"> physical condition of the constructed digestate storage lagoon; the suitability for providing containment when subjected to the dynamic and static loads caused by digestate liquid; any work required to ensure compliance with the standards detailed in CIRIA C736 or other relevant industry standard; and a maintenance and inspection regime. <p>The written report of the construction shall be submitted to the Environment Agency for approval. Any remedial action taken to ensure that the digestate storage lagoon meets the CIRIA C736 standards shall be included in the report.</p>

Table S1.4 Pre-operational measures	
Reference	Pre-operational measures
Pre-operational condition for suitability of primary containment	
PO3	<p>Prior to the acceptance of waste feedstock at the site, the operator shall submit a written 'primary containment report' and shall obtain the Environment Agency's written approval to it. The report shall contain the results of an inspection and program of works undertaken by a qualified civil or structural engineer and shall assess the extent design specification and condition of primary containment systems where polluting liquids and solids are being stored, treated, and/or handled.</p> <p>The report shall include:</p> <ul style="list-style-type: none"> • an assessment of the physical condition of all primary containment systems (storage and treatment vessels) using a Written Scheme of Examination and their suitability for providing primary containment when subjected to the dynamic and static loads caused by catastrophic tank failure; • a program of works with timescales for the implementation of individual improvement measures necessary to demonstrate that the primary containment is fit for purpose or alternative appropriate measures to ensure all polluting materials will be contained on site; and • a maintenance and inspection regime <p>The program of works shall be implemented in accordance with the Environment Agency's written approval.</p>
Pre-operational condition for operational contingency storage capacity	
PO4	<p>Prior to the acceptance of waste feedstock at the site, the operator shall provide a written "digestate storage plan" and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of a review of the storage of digestate and/or compost liquor produced from site operations. The review shall examine site contingency arrangements in the event of closed landspreading periods, extreme weather conditions, site closure, disease outbreak etc.</p> <p>The storage plan shall include:</p> <ul style="list-style-type: none"> • Additional storage capacity on-site (at least 2 months storage) and storage capacity off-site; • Identification of alternative outlets for digestate and/or compost liquor – identify companies /permitted waste facilities that would be able to manage the digestate and/or liquor output(s), taking into account their permits and capacity constraints. <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>

Schedule 2 – Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels	
Raw materials and fuel description	Specification
Vegetable matter (energy crops)	Substantially free of non-vegetable matter
Maize silage	Substantially free of non-vegetable matter

Table S2.2 Permitted waste types and quantities for anaerobic digestion	
Maximum quantity	Annual throughput shall not exceed 94,000 tonnes
Exclusions	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> • biodegradable wastes that is significantly contaminated with non-compostable or digestible contaminants, in particular plastic and litter shall be no more than 5% w/w and shall be as low as reasonably practicable by 31 December 2025. • wastes containing wood-preserving agents or other biocides and post-consumer wood • wastes containing persistent organic pollutants • wastes containing Japanese Knotweed or other invasive plant species listed in the Invasive Species (Amendment etc.) (EU Exit) Regulations 2019 • manures, slurries and spoiled bedding and straw from farms where animals have notifiable diseases as stipulated in the Animal By-Products (Enforcement) (England) Regulations 2013. • pest infested waste
Waste code	Description
02	Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning – vegetables, fruit and other crops
02 01 03	plant tissue waste
02 01 06	animal faeces, urine and manure (including spoiled fully biodegradable animal bedding)
02 01 99	wastes not otherwise specified – spent mushroom compost from commercial mushroom growing only
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning peeling, centrifuging and separation (including sludge from production of edible fats and oils, seasoning residues, molasses residues, residues from production of potato, corn or rice starch only)
02 03 04	materials unsuitable for consumption or processing (including waste from production of edible fats and oils, seasoning residues, molasses residues, residues from production of potato, corn or rice starch only)

02 03 05	sludges from on-site effluent treatment (including sludge from production of edible fats and oils, seasoning residues, molasses residues, residues from production of potato, corn or rice starch only)
02 04	wastes from sugar processing
02 04 03	sludges from on-site effluent treatment – sludges from the processing of sugar
02 05	wastes from the dairy products industry
02 05 01	materials unsuitable for consumption or processing – biodegradable wastes derived from the processing of dairy products only
02 05 02	sludges from on-site effluent treatment
02 06	wastes from the baking and confectionery industry
02 06 01	materials unsuitable for consumption or processing – biodegradable wastes from the processing of materials used in bakery and confectionery
02 06 03	sludges from on-site effluent treatment – sludges from the processing of materials used in baking and confectionery
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials – biodegradable wastes from the processing of the raw materials used in the production of such beverages only (wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa))
02 07 02	wastes from spirits distillation – spent grains, hops and whisky filter sheets and cloths, yeast and yeast like residues, sludge from production process, or malt husks, malt sprouts, yeasts and yeast-like residues only
02 07 04	materials unsuitable for consumption or processing – biodegradable wastes from the processing of the raw materials used in the production of such beverages only (wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa))
02 07 05	sludges from on-site effluent treatment – sludges from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
16	Wastes not otherwise specified in the list
16 10	aqueous liquid wastes destined for off-site treatment
16 10 02	untreated wash waters from cleaning fruit and vegetables on farm only
16 10 02	milk and dairy waste milk from agricultural premises only
16 10 02	liquor/leachate from a composting process that accepts waste input types listed in this table only and in compliance with Animal By-Products Regulations
19	Wastes from waste management facilities, off-site waste water treatment plants and the preparation of water intended for human consumption and water for industrial use
19 06	wastes from anaerobic treatment of waste
19 06 03	liquor from anaerobic treatment of municipal waste (from a process that accepts wastes which are listed in this table only) and made up of previously pasteurised and stabilised batches only

19 06 04	digestate from anaerobic treatment of source segregated biodegradable waste (from a process that accepts wastes which are listed in this table only) and made up of previously pasteurised and stabilised batches only
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Schedule 3 – Emissions and monitoring

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
New medium combustion plant which are engines fuelled on biogas						
Point A1 shown on the site plan in Schedule 7	CHP engine 1 stack [Note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Average over sample period	Annual	BS EN 14792
		Sulphur dioxide	107 mg/m ³			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur
		Carbon monoxide	1400 mg/m ³			BS EN 15058
		Total VOCs	No limit set	--	--	BS EN 12619
Point A2 shown on the site plan in Schedule 7	CHP engine 2 stack [Note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Average over sample period	Annual	BS EN 14792
		Sulphur dioxide	107 mg/m ³			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur
		Carbon monoxide	1400 mg/m ³			BS EN 15058
		Total VOCs	No limit set	--	--	BS EN 12619
Point A3 shown on the site plan in Schedule 7	Emergency flare stack	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	Average over sample period	[Note 2]	BS EN 14792
		Carbon monoxide	50 mg/m ³			BS EN 15058
		Total VOCs	10 mg/m ³			BS EN 12619:2013

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
Point A6, A19, A20, A21 shown on the site plan in Schedule 7	Channelled emissions such as odour abatement stack or vent(s)	Hydrogen sulphide	No limit set	Average over sample period	Once every 6 months	CEN TS 13649 for sampling NIOSH 6013 for analysis
		Odour concentration	1,000 ouE/m ³	Average over sample period	Once every 6 months	BS EN 13725
		Ammonia	20 mg/m ³	Average over sample period	Once every 6 months	EN ISO 21877
Point A4 shown on the site plan in Schedule 7	Auxiliary boiler stack	No parameter set	No limit set	--	--	--
Pressure relief valves (A7 – A12, A14 – A18)	Digesters/digestate storage tank(s) (A14 – A18), biogas upgrading plant (A7 – A8), CO ₂ recovery plant (A9 and A10), CO ₂ and CH ₄ compressors (A11 and A12)	Biogas release and operational events	No limits set	Recorded duration and frequency	Daily inspection	--
Vents from tank(s)	Oil/Fuel Storage tank(s)	No parameter set	No limit set	--	--	--
<p>Note 1 – These emission limits are based on normal operating conditions and load - temperature 0°C (273 K); pressure 101.3 kPa and oxygen 5% (for gas engines) and oxygen 3% for emergency flares and medium combustion plants other than engines and gas turbines (such as boilers).</p> <p>Note 2 – Following commissioning, monitoring to be undertaken in the event the emergency flare has been operational for more than 10 per cent of a year (876 hours). Record of operating hours to be submitted annually to the Environment Agency.</p>						

Table S3.2 Point source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	Source [Note 1]	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
Point W1, shown on the site plan in Schedule 7	Uncontaminated site surface water from roofs and non-operational areas	Oil and grease	No visible oil or grease	--	Weekly	Visual assessment
Note 1 – Clean surface water from roofs, or from areas of the site that are not being used in connection with storing and treating waste can be discharged directly to surface waters, or to groundwater by seepage through the soil via a soakaway.						

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Digester feed (digestion process)	pH	As described in site operating techniques	As described in site operating techniques	Process monitoring to be recorded using a SCADA system where relevant.
	Alkalinity			
	Temperature			
	Hydraulic loading rate			
	Organic loading rate			
	Volatile fatty acids concentration			
	Ammonia			
	Liquid /foam level			
Biogas in digester	Flow	Continuous	In accordance with EU weights and measures Regulations	Process monitoring to be recorded using a SCADA system where relevant. Gas monitors to be calibrated every 6 months or in accordance with the manufacturer's recommendations.
	Methane	Continuous	None specified	
	CO ₂	Continuous	None specified	
	O ₂	Continuous	None specified	
	Hydrogen sulphide	Daily	None specified	
	Pressure	Continuous	None specified	
Digestate batch	Volatile fatty acids concentration	One sample at the end of each batch (hydraulic retention time) cycle.	As described in site operating techniques	--
	Ammonia			

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
Digester(s) and storage tank(s)	Integrity checks	Weekly	Visual assessment	In accordance with design specification and tank integrity checks.
Digester(s)	Agitation /mixing	Continuous	Systems controls	Records maintained in daily operational records.
	Tank capacity and sediment assessment	Once every 5 years from date of commission	Non-destructive pressure testing integrity assessment every 5 years or as specified by manufacturers technical specification.	In accordance with design specification and tank integrity checks.
Waste reception building or area; Digester(s) and storage tank(s)	Odour	Daily	Olfactory monitoring	Odour detection at the site boundary.
Diffuse emissions from all sources identified in the Leak Detection and Repair (LDAR) programme	VOCs including methane	Every 6 months or otherwise agreed in accordance with the LDAR programme	'Sniffing' and/or Optical Gas Imaging techniques in accordance with BS EN 15446 & BS EN 17628	Monitoring points as specified in a DSEAR risk assessment and LDAR programme. Limit as agreed with the Environment Agency as a percentage of the overall gas production.
CHP engine stack(s)	VOCs including methane	Annually	BS EN 12619	Total annual VOCs emissions from the CHP engine(s) to be calculated and submitted to the Environment Agency.
	Exhaust gas temperature		Traceable to National Standards	
	Exhaust gas pressure		Traceable to National Standards	
	Exhaust gas water vapour content		BS EN 14790-1	Unless gas is dried before analysis of emissions.
	Exhaust gas oxygen		BS EN 14789	

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
	Exhaust gas flow		BS EN 16911-1	
Meteorological conditions	Wind speed, air temperature, wind direction	Continuous	Method as specified in management system	<p>Conditions to be recorded in operational diary and records.</p> <p>Equipment shall be calibrated on a 4 monthly basis, in accordance with manufacturer's recommendations or as agreed in writing by the Environment Agency.</p>
Emergency flare	Operating hours	Continuous	Recorded duration and frequency. Recording using a SCADA system or similar system	Date, time and duration of use of auxiliary flare shall be recorded.
	Quantity of gas sent to emergency flare			Quantity can be estimated from gas flow composition, heat content, ratio of assistance, velocity, purge gas flow rate, pollutant emissions.
Pressure relief valves and vacuum systems	Gas pressure	Continuous	Recording using a SCADA system	Continuous gas pressure shall be monitored.
	Re-seating	Weekly inspection	Visual	Operator must ensure that valves are re-seated after release in accordance with the manufacturer's design.
	Inspection, maintenance, calibration, repair and validation	Following foaming or overtopping or at 3 yearly intervals whichever is sooner	Written scheme of examination in accordance with condition 1.1.1	After a foaming event or sticking, build-up of debris, obstructions or damage, operator must ensure that pressure relief valve function remains within designed gas pressure in accordance with the manufacturer's design by suitably trained and qualified personnel.

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
	Inspection, calibration and validation report	In accordance with design and construction specifications or after over topping or foaming event	Written scheme of examination in accordance with condition 1.1.1	<p>Operator must ensure that valves are re-seated after release, after a foaming event or sticking, build-up of debris, obstructions or damage.</p> <p>Operator must ensure that PRV function remains within designed operation gas pressure in accordance with the manufacturer's design by suitably trained/qualified personnel.</p> <p>Inspection, calibration and validation report. In accordance with industry Approved Code of Practice</p>
Storage lagoons and storage tanks	Volume	Daily	Visual or flow metre measurement	<p>750 mm freeboard must be maintained for storage lagoons.</p> <p>Records of volume must be maintained.</p>
Odour abatement plant				
Scrubbers (water/chemical/dry)				
Scrubber	Gas temperature – inlet and outlet	Continuous	Temperature probe / Traceable to national standards	Odour abatement plant shall be regularly checked and maintained to ensure appropriate temperature and moisture content.
	Gas flow rate – inlet and outlet	Continuous	Gas flow meter	
	Moisture content or humidity – inlet and outlet (for dry scrubbers only)	Daily	Moisture meter	Odour abatement plant shall be managed in accordance with permit condition 3.3, the odour management plan and manufacturer's recommendations.
	Moisture content or humidity – outlet (for wet scrubbers if used before other abatement systems)	Daily	Moisture meter	

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
	Back pressure	Weekly	Pressure differential using sensors	Equipment shall be calibrated on a 4 monthly basis, or as agreed in writing by the Environment Agency.
	Efficiency assessment	Annual	Emission removal efficiency (BS EN 13725 for odour removal)	
	pH scrubber solution (pre-abatement)	Continuous	pH meter	
	pH scrubber solution (post-abatement)	Continuous	pH meter	
	Hydrogen sulphide – inlet and outlet gas stream	Every 6 months or as agreed in writing by the Environment Agency.	CEN TS 13649 for sampling NIOSH 6013 for analysis	Action levels to be agreed on completion of IC3 as approved in writing by the Environment Agency. Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.
	Ammonia – inlet	Every 6 months or as agreed in writing by the Environment Agency.	EN ISO 21877	Action levels to be agreed on completion of IC3 as approved in writing by the Environment Agency. Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.
Carbon filters				
Carbon filters	Carbon bed temperature – inlet and outlet	Continuous	Temperature probe	Odour abatement plant shall be managed in accordance with permit condition 3.3, the odour management plan and
	Gas flow rate – inlet and outlet	Continuous	Gas flow meter	
	Moisture or humidity	Daily	Moisture meter	

Table S3.3 Process monitoring requirements				
Emission point reference or source or description of point of measurement	Parameter	Monitoring frequency	Monitoring standard or method	Other specifications
	Back pressure	Weekly	Recognised industry method	manufacturer's recommendations.
	Efficiency assessment	Annual	Emission removal efficiency (BS EN 13725 for odour removal)	Carbon filter(s) to be replaced in accordance with manufacturer's recommendations. Equipment shall be calibrated on a 4 monthly basis, or as agreed in writing by the Environment Agency.
	Hydrogen sulphide – inlet and outlet gas stream	Every 6 months or as agreed in writing by the Environment Agency.	CEN TS 13649 for sampling NIOSH 6013 for analysis	Action levels to be agreed on completion of IC3 as approved in writing by the Environment Agency. Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.
	Ammonia – inlet	Every 6 months or as agreed in writing by the Environment Agency.	EN ISO 21877	Action levels to be agreed on completion of IC3 as approved in writing by the Environment Agency. Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.
	Odour concentration – inlet and outlet gas stream	Every 6 months or as agreed in writing by the Environment Agency.	BS EN 13725	Action levels to be agreed on completion of IC3 as approved in writing by the Environment Agency. Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.

Table S3.4 Bioaerosols monitoring requirements – ambient monitoring					
Location or description of point of measurement	Parameter	Bioaerosols action levels (CFU m ⁻³)	Monitoring frequency	Monitoring standard or method	Other specifications
Upwind of the operational area, as described in the Technical Guidance Note M9	Total bacteria	1000 ^{Note 1}	Quarterly for the first year of operation and twice a year thereafter, unless another frequency is agreed in writing by the Environment Agency ^{Note 2}	In accordance with Technical Guidance Note M9 – Environmental monitoring of bioaerosols at regulated facilities.	As described in the Technical Guidance Note M9, including all the additional data requirements specified therein.
Downwind of the operational area, as described in the Technical Guidance Note M9	Aspergillus Fumigatus	500 ^{Note 1}			
<p>Note 1 - The bioaerosols action levels are only applicable at downwind sampling locations equivalent to the distance of the nearest sensitive receptor. Where these action levels are elevated, the operator must take action to mitigate the impact on sensitive receptors. Assessment of compliance will be based on risk and in line with guidance.</p> <p>Note 2 - Where the bioaerosols action levels are exceeded, then monitoring shall be quarterly until such time that it is demonstrated that the site has adequate mitigation for a 12-month period.</p>					

Schedule 4 – Reporting

Parameters, for which reports shall be made, in accordance with conditions of this permit, are listed below.

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air from CHP engines Parameters as required by condition 3.5.1.	A1, A2	Every 12 months	1 January
Emissions to air from odour abatement plant Parameters as required by condition 3.5.1.	A6, A19, A20, A21	Every 6 months	1 January, 1 July
Emissions to water and land Parameters as required by condition 3.5.1	W1	Every 12 months	1 January
Process monitoring – digester tank integrity Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.3	Every 5 years from the date of commissioning or as per the manufacturer's recommendation, whichever is sooner	1 January
Process monitoring – under and over pressure relief systems Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.3	Every 12 months Yearly summary report of over-pressure and under-pressure events detailing mass balance release	1 January
Process monitoring – pressure relief systems (inspection, calibration and maintenance) Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.3	Every 3 years	1 January
Process monitoring – leak detection and repair surveys Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.3	Every 12 months LDAR report to be submitted annually	1 January
Process monitoring – use of emergency flare Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.3	Every 12 months	1 January
Non-compostable contamination removal efficiency Parameters as required by conditions 2.3.4, 2.3.7 and 4.2.7	--	Every 12 months Yearly report of detailing contamination removal efficiency and progress with plastic reduction contamination	
Total annual VOCs emissions from gas engines (calculated)	As specified in schedule 3 table S3.3	Every 12 months	1 January

Table S4.1 Reporting of monitoring data			
Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Bioaerosols monitoring Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.4	Every 3 months for the first year of operation, and every 6 months thereafter, unless another frequency is agreed in writing by the Environment Agency <small>Note 1</small>	1 January, 1 April, 1 July, 1 October
Note 1 - Where the bioaerosols action levels are exceeded, then monitoring shall be quarterly until such time that it is demonstrated that the site has adequate mitigation for a 12-month period.			

Table S4.2 Annual production/treatment	
Parameter	Units
Electricity generated	MWh
Biomethane generated	tonnes or m ³
CO ₂ generated	tonnes or m ³
Liquid digestate	m ³
Solid digestate	tonnes
Recovered outputs	tonnes or m ³

Table S4.3 Performance parameters		
Parameter	Frequency of assessment	Units
Water usage	Annually	tonnes or m ³
Energy usage	Annually	MWh
Raw material usage	Annually	tonnes or m ³
Emergency flare operation	Annually	hours
Electricity exported	Annually	MWh
Biomethane exported	Annually	tonnes or m ³
CHP engine usage	Annually	hours
CHP engine efficiency	Annually	%
Auxiliary boiler usage	Annually	hours

Table S4.4 Reporting forms		
Media/parameter	Reporting format	Date of form
Point source emissions to air	Emissions to Air Reporting Form, or other form as agreed in writing by the Environment Agency	Version 1, 08/03/2021
Bioaerosols	As specified in the Technical Guidance Note M9 or other form as agreed in writing by the Environment Agency	--
Process monitoring	Process Monitoring Form, or other form as agreed in writing by the Environment Agency	Version 1, 08/03/2021
Point source emissions to water (other than sewer)	Emissions to Water Reporting Form, or other form as agreed in writing by the Environment Agency	Version 1, 08/03/2021
Water usage	Water Usage Reporting Form, or other form as agreed in writing by the Environment Agency	Version 1, 08/03/2021
Energy usage	Energy Usage Reporting Form, or other form as agreed in writing by the Environment Agency	Version 1, 08/03/2021
Other performance parameters	Other Performance Parameters Reporting Form, or other form as agreed in writing by the Environment Agency	Version 1, 08/03/2021
Waste returns	E-waste Return Form or other form as agreed in writing by the Environment Agency	--

Schedule 5 – Notification

These pages outline the information that the operator must provide.

Units of measurement used in information supplied under Part A and B requirements shall be appropriate to the circumstances of the emission. Where appropriate, a comparison should be made of actual emissions and authorised emission limits.

If any information is considered commercially confidential, it should be separated from non-confidential information, supplied on a separate sheet and accompanied by an application for commercial confidentiality under the provisions of the EP Regulations.

Part A

Permit Number	
Name of operator	
Location of Facility	
Time and date of the detection	

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution	
To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	

(b) Notification requirements for the breach of a limit	
To be notified within 24 hours of detection unless otherwise specified below	
Measures taken, or intended to be taken, to stop the emission	

Time periods for notification following detection of a breach of a limit	
Parameter	Notification period

(c) Notification requirements for the breach of permit conditions not related to limits	
To be notified within 24 hours of detection	
Condition breached	
Date, time and duration of breach	
Details of the permit breach i.e. what happened including impacts observed.	
Measures taken, or intended to be taken, to restore permit compliance.	

(d) Notification requirements for the detection of any significant adverse environmental effect	
To be notified within 24 hours of detection	
Description of where the effect on the environment was detected	
Substances(s) detected	
Concentrations of substances detected	
Date of monitoring/sampling	

Part B – to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	

Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 – Interpretation

“accident” means an accident that may result in pollution.

“ADQP” means Anaerobic Digestion Quality Protocol

“anaerobic digestion” means a process of controlled decomposition of biodegradable materials under managed conditions where free oxygen is absent, at temperatures suitable for naturally occurring mesophilic or thermophilic anaerobes and facultative anaerobe bacteria species, which convert the inputs to a methane-rich biogas and whole digestate.

“animal waste” means any waste consisting of animal matter that has not been processed into food for human consumption.

“application” means the application for this permit, together with any additional information supplied by the operator as part of the application and any response to a notice served under Schedule 5 to the EP Regulations.

“authorised officer” means any person authorised by the Environment Agency under section 108(1) of The Environment Act 1995 to exercise, in accordance with the terms of any such authorisation, any power specified in section 108(4) of that Act.

“Best available techniques” means the most effective and advanced stage in the development of activities and their methods of operation which indicates the practical suitability of particular techniques for providing the basis for emission limit values and other permit conditions designed to prevent and, where that is not practicable, to reduce emissions and the impact on the environment as a whole:

(a) ‘techniques’ includes both the technology used and the way in which the installation is designed, built, maintained, operated and decommissioned;

(b) ‘available techniques’ means those developed on a scale which allows implementation in the relevant industrial sector, under economically and technically viable conditions, taking into consideration the costs and advantages, whether or not the techniques are used or produced inside the Member State in question, as long as they are reasonably accessible to the operator;

(c) ‘best’ means most effective in achieving a high general level of protection of the environment as a whole.

“bioaerosols action levels” mean the acceptable bioaerosols concentrations at the nearest sensitive receptor, or at an equivalent distance downwind of the biowaste treatment operations, which are attributable to the biowaste treatment operations. The acceptable concentrations are respectively 1000 and 500 CFU m⁻³ for total bacteria and *Aspergillus fumigatus*. Where these action levels are elevated, the operator must take action to mitigate the impact on sensitive receptors.

“Biodegradable” means a material is capable of undergoing biological anaerobic or aerobic degradation leading to the production of CO₂, H₂O, methane, biomass, and mineral salts, depending on the environmental conditions of the process.

“building” means a construction that has the objective of providing sheltering cover and minimising emissions of noise, particulate matter, odour and litter.

“Capacity” means the potential capacity and not historical or actual production levels or throughput. This means that the designed capacity is the maximum rate at which the site can operate. Biological treatment of waste usually takes place over more than one day, so the physical daily capacity can be calculated by dividing the maximum quantity of waste that could be subject to biological treatment at any one time by the minimum residence time. For in-vessel composting, the residence time for sanitisation should be calculated separately and then aggregated to the complete composting time. Further guidance ‘[RGN2: Understanding the meaning of regulated facility Definition of regulated facility](#)’ is available.

“channelled emissions” means the emissions of pollutants into the environment through any kind of duct, pipe, stack, etc. This also includes emissions from open top biofilters.

“combined heat and power” (CHP) or Cogeneration means the simultaneous generation in one process of thermal energy and electrical or mechanical energy.

“competent persons and resources” means that a technically competent person accredited to a relevant scheme must attend site and record their attendance, and that all roles and responsibilities are clearly stated in the management systems along with records of operatives’ training. See the guidance on the level of competence and duration of attendance

“compost” means solid particulate material that is the result of composting, which has been sanitised and stabilised, and which confers beneficial effects when added to soil, used as a component of growing media or used in another way in conjunction with plants.

‘compostable plastics’ means waste containing packaging or non-packaging items (or both) with a valid certificate of conformity to EN 13432 or an equivalent standard for compostable and digestible items, the certificate issued by an independent certification body capable of fully biodegrading by a biological process to create compost or digest.

“composting” means the managed biological decomposition of biodegradable waste organic materials, under conditions that are predominantly aerobic and that allow the development of thermophilic temperatures as a result of biologically produced heat and that result in compost.

“composting batch” means an identifiable quantity of material that progresses through the composting system and when fully processed has similar characteristics throughout. For composting systems that operate on a continuous- or plug-flow basis, batches will be taken to mean a series of “portions of production”.

‘direct discharge’ means discharge to a receiving water body

“diffuse emissions” mean non-channelled emissions (e.g. of dust, organic compounds, odour) which can result in ‘area’ sources (e.g. tanks) or ‘point’ sources (e.g. pipe flanges). This also includes emissions from open-air windrow composting.

“digestate” means material resulting from an anaerobic digestion process.

“disposal” means any of the operations provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“emissions of substances not controlled by emission limits” means emissions of substances to air, water or land from the activities, either from the emission points specified in schedule 3 or from other localised or diffuse sources, which are not controlled by an emission limit.

“emissions to land” includes emissions to groundwater.

“EP Regulations” means The Environmental Permitting (England and Wales) Regulations SI 2016 No.1154 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

“existing medium combustion plant” means an MCP which was put into operation before 20 December 2018.

“generator” means any combustion plant which is used to generate electricity, excluding mobile, unless it is connected to the national grid.

“groundwater” means all water, which is below the surface of the ground in the saturation zone and in direct contact with the ground or subsoil.

“impermeable surface” means a surface or pavement constructed and maintained to a standard sufficient to prevent the transmission of liquids beyond the pavement surface.

“Industrial Emissions Directive” means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“Leak detection and repair (LDAR) programme” means a structured approach to reduce fugitive emissions of organic compounds by detection and subsequent repair or replacement of leaking components. Currently,

sniffing (described by EN 15446) and optical gas imaging methods are available for the identification of leaks as set out in BAT 14 and section 6.6.2 of the Waste Treatment BAT Conclusions.

“maturation” means optional period of treatment or storage of separated fibre digestate under predominantly aerobic conditions.

“MCERTS” means the Environment Agency’s Monitoring Certification Scheme.

“medium combustion plant” or “MCP” means a combustion plant with a rated thermal input equal to or greater than 1 MW but less than 50 MW.

“Medium Combustion Plant Directive” or “MCPD” means Directive 2015/2193/EU of the European Parliament and of the Council on the limitation of emissions of certain pollutants into the air from medium combustion plants, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

“new medium combustion plant” means an MCP which was put into operation after 20 December 2018. This includes replacement MCP and Generators.

“operational area” means any part of a facility used for the handling, storing and treatment of waste.

“operator” means in relation to a regulated facility:

- (a) the person who has control over the operation of the regulated facility,
- (b) if the regulated facility has not yet been put into operation, the person who will have control over the regulated facility when it is put into operation, or
- (c) if a regulated facility authorised by an environmental permit ceases to be in operation, the person who holds the environmental permit

“pests” means Birds, Vermin and Insects.

“pollution” means emissions as a result of human activity which may—

- (a) be harmful to human health or the quality of the environment,
- (b) cause offence to a human sense,
- (c) result in damage to material property, or
- (d) impair or interfere with amenities and other legitimate uses of the environment.

“quarter” means a calendar year quarter commencing on 1 January, 1 April, 1 July or 1 October.

“recovery” means any of the operations provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“Representative internal” – means representative monitoring at a point internally of the windrows that will give a representative assessment of temperature. Note: Larger windrows will require more bespoke temperature equipment to adequately assess temperature profiles accurately.

“sanitisation” means the actively managed and intensive stage of composting, lasting for at least 5 days, characterised by high oxygen demand and temperatures of over 55°C, during which biological processes, together with conditions in the composting mass, eradicate human and animal pathogens or reduce them to acceptably low levels. The operator also needs to meet ABPR requirements.

“sealed drainage system” in relation to an impermeable surface, means a drainage system with impermeable components which does not leak and which will ensure that:

- no liquids will run off the surface otherwise than via the system
- all liquids entering the system are collected in a sealed sump, except where liquids may be lawfully discharged to foul sewer.

“specified generator” means a group of generators other than excluded between 1 and 50 megawatts or less than 50 megawatts as defined in Schedule 25B(2) of SI 2018 No.110 of the EPR.

“stable, stabilised” means the degree of processing and biodegradation at which the rate of biological activity has slowed to an acceptably low and consistent level and will not significantly increase under favourable, altered conditions.

“stabilisation stage” means the stage of composting following sanitisation, during which biological conditions in the composting mass, give rise to compost that is nominally stable.

“treated wood” means any wood that has been chemically treated (e.g. to enhance or alter the performance of the original wood). Treatments may include penetrating oils, tar oil preservatives, water-borne preservatives, organic-based preservatives, boron and organo-metallic based preservatives, boron and halogenated flame retardants and surface treatments (including paint and venner).

“VOC” means Volatile organic compounds as defined in Article 3(45) of Directive 2010/75/EU – ‘volatile organic compound’ means any organic compound as well as the fraction of creosote, having at 293.15K a vapour pressure of 0.01 kPa or more, or having a corresponding volatility under the particular conditions of use.

“Waste code” means the six digit code referable to a type of waste in accordance with the List of Wastes (England) Regulations 2005, or List of Wastes (Wales) Regulations 2005, as appropriate, and in relation to hazardous waste, includes the asterisk.

“Waste Framework Directive” or “WFD” means Waste Framework Directive 2008/98/EC of the European Parliament and of the Council on waste, as read in accordance with Schedule 1A to the Environmental Permitting (England and Wales) Regulations 2016.

Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

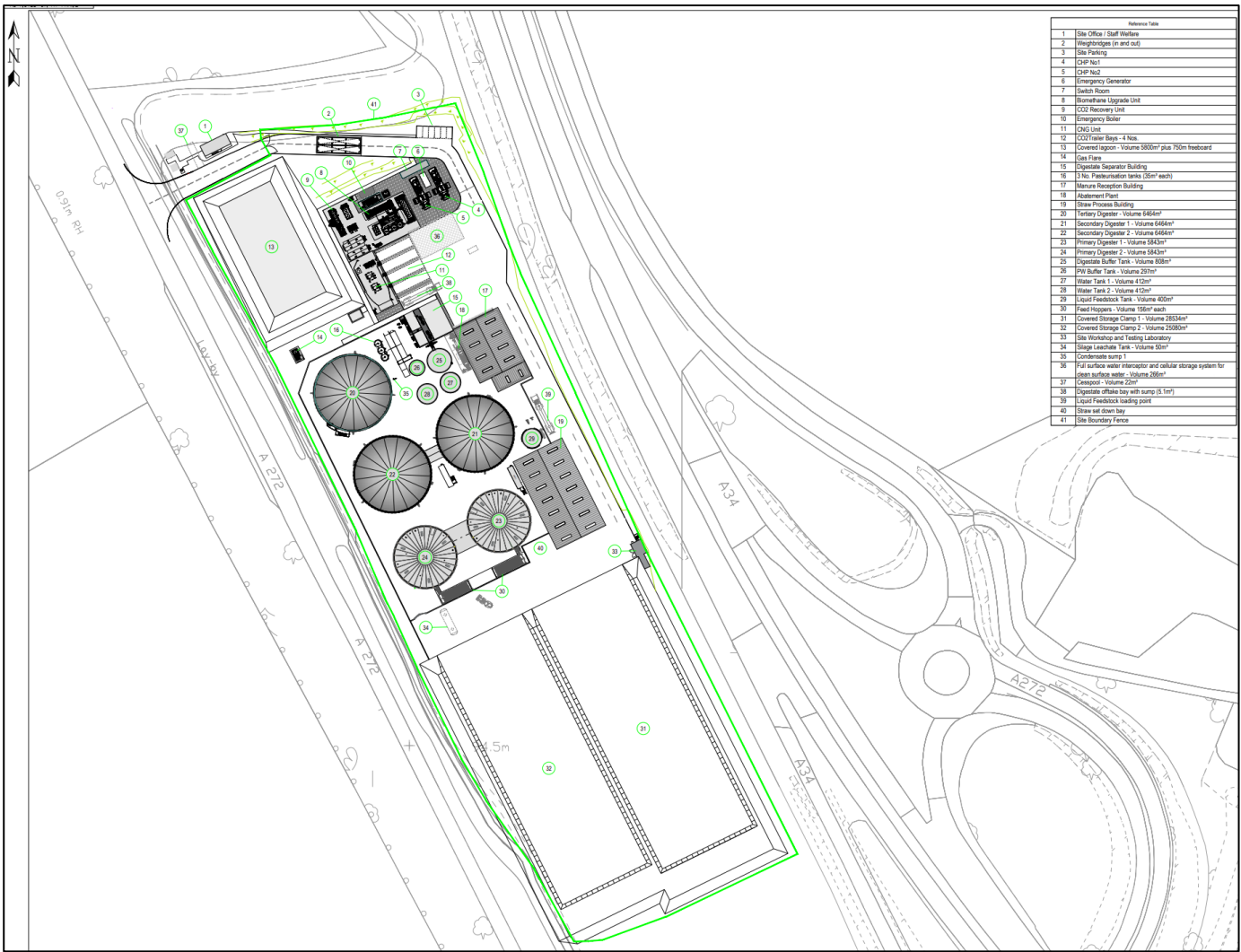
Unless otherwise stated, any references in this permit to concentrations of substances in emissions into air means:

- in relation to emissions from combustion processes, the concentration in dry air at a temperature of 273K, at a pressure of 101.3 kPa and with an oxygen content of 3% dry for liquid fuels and gaseous fuels, 6% dry for solid fuels; and/or
- in relation to emissions from non-combustion sources, the concentration at a temperature of 273K and at a pressure of 101.3 kPa, with no correction for water vapour content.

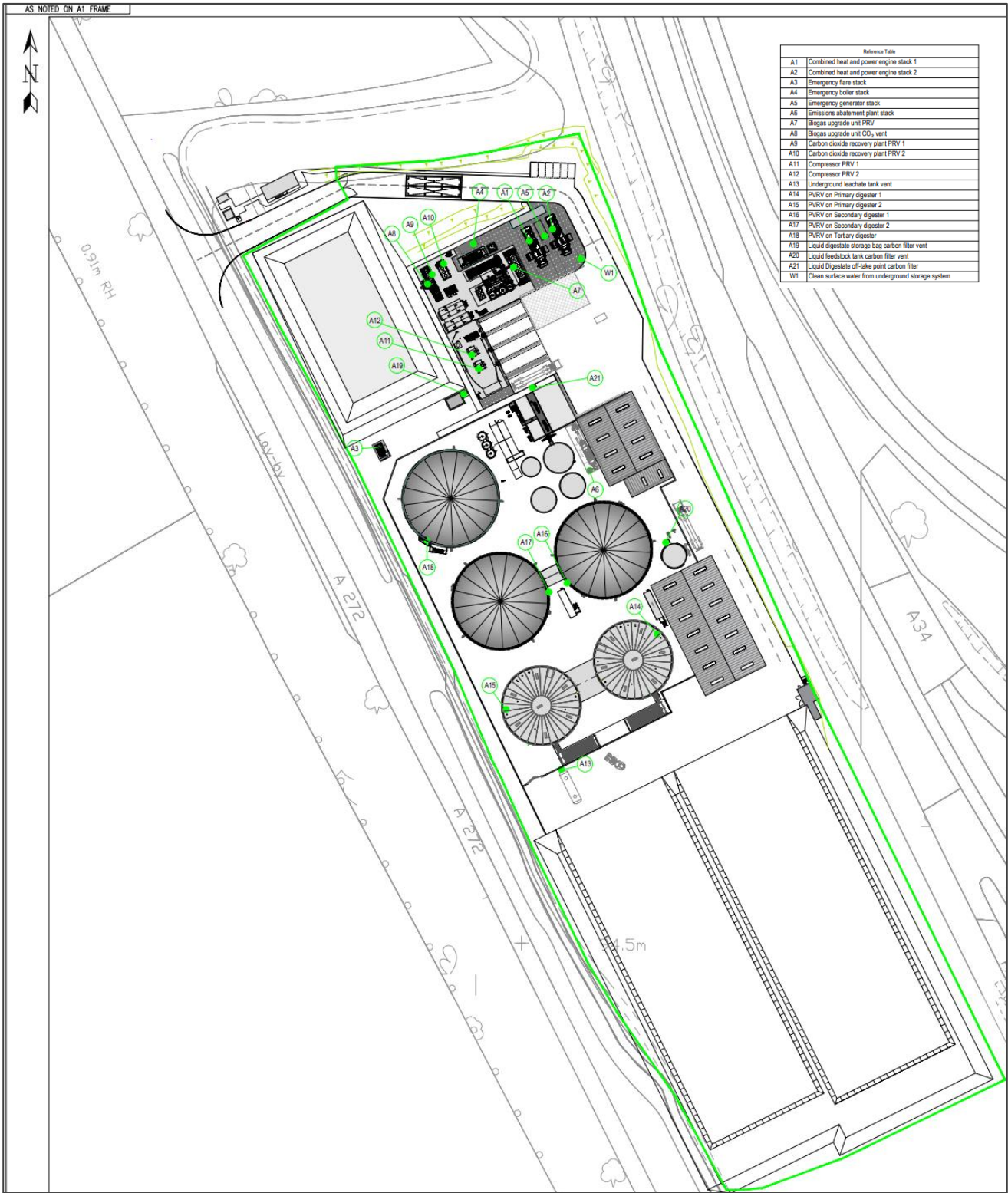
“year” means calendar year ending 31 December.

Schedule 7 – Site plan

Site infrastructure plan



Emission point layout



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END OF PERMIT

Emissions to Air Reporting Form

Permit number: EPR/BP3326SD

Operator: Acorn Bioenergy Operations Limited

Facility name: Three Maids AD Plant

Emissions to Air Reporting Form: version 1, 08/03/2021

Reporting of emissions to air for the period from *[DD/MM/YY]* to *[DD/MM/YY]*

Emission point	Substance / parameter	Emission Limit Value	Reference period	Test method ¹	Result ²	Sample dates and times ³	Uncertainty ⁴
<i>[e.g. A1]</i>	<i>[e.g. Oxides of nitrogen (NO and NO₂ expressed as NO₂)]</i>	<i>[e.g. 200 mg/m³]</i>	<i>[e.g. daily average]</i>	<i>[e.g. BS EN 14181]</i>	<i>[State result]</i>	<i>[State relevant dates and time periods]</i>	<i>[State uncertainty if not 95% confidence interval]</i>

Signed: *[Name]*

Date: *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report your monitoring results.

Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. Complete columns 1 to 5 using the information from schedule 3 of your permit. Complete columns 6 to 8 with your monitoring data. Add additional rows as necessary.

- ¹ Where an internationally recognised standard test method is used, give the reference number. Where another method that has been formally agreed with the Environment Agency, give the appropriate identifier. In other cases state the principal technique, for example gas chromatography.
- ² Give the result as the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, give the result as the 'minimum to maximum' of the measured values.
- ³ For non-continuous measurements give the date and time of the sample that produced the result. For continuous measurements give the percentage of the process operating time covered by the result.
- ⁴ Complete if the uncertainty associated with the result is not a 95% confidence interval. Leave blank for 95% confidence intervals.

Emissions to Water Reporting Form

Permit number: EPR/BP3326SD

Operator: Acorn Bioenergy Operations Limited

Facility name: Three Maids AD Plant

Emissions to Water Reporting Form: version 1, 08/03/2021

Reporting of emissions to water (other than to sewer) for the period from *[DD/MM/YY]* to *[DD/MM/YY]*

Emission point	Substance / parameter	Emission Limit Value	Reference period	Test method ¹	Result ²	Sample dates and times ³	Uncertainty ⁴
<i>[e.g. W1]</i>	<i>[e.g. Total suspended solids]</i>	<i>[e.g. 30 mg/l]</i>	<i>[e.g. For 95% of all measured values of periodic samples taken over one month]</i>	<i>[e.g. BS EN 872:2005]</i>	<i>[State result]</i>	<i>[State relevant dates and time periods]</i>	<i>[State uncertainty if not 95% confidence interval]</i>

Signed: *[Name]*

Date: *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report your monitoring results.

Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. Complete columns 1 to 5 using the information from schedule 3 of your permit. Complete columns 6 to 8 with your monitoring data. Add additional rows as necessary.

- ¹ Where an internationally recognised standard test method is used, give the reference number. Where another method that has been formally agreed with the Environment Agency, give the appropriate identifier. In other cases state the principal technique, for example gas chromatography.
- ² Give the result as the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, give the result as the 'minimum to maximum' of the measured values.
- ³ For non-continuous measurements give the date and time of the sample that produced the result. For continuous measurements give the percentage of the process operating time covered by the result.
- ⁴ Complete if the uncertainty associated with the result is not a 95% confidence interval. Leave blank for 95% confidence intervals.

Process Monitoring Form

Permit number: EPR/BP3326SD

Operator: Acorn Bioenergy Operations Limited

Facility name: Three Maids AD Plant

Process Monitoring Form: version 1, 08/03/2021

Reporting of process monitoring for the period from *[DD/MM/YY]* to *[DD/MM/YY]*

Monitoring point description or source	Parameter	Reference period	Test method ¹	Result ²	Sample dates and times ³	Uncertainty ⁴
<i>[e.g. Condenser V 2345]</i>	<i>[e.g. cooling water outlet temperature]</i>	<i>[e.g. instantaneous]</i>	<i>[if applicable]</i>	<i>[State result]</i>	<i>[State relevant dates and time periods]</i>	<i>[if applicable]</i>

Operator's comments

Signed: *[Name]*

Date: *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report your monitoring results.

Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. Complete columns 1 to 5 using the information from schedule 3 of your permit. Complete columns 6 to 8 with your monitoring data. Add additional rows as necessary.

- ¹ Where an internationally recognised standard test method is used, give the reference number. Where another method that has been formally agreed with the Environment Agency, give the appropriate identifier. In other cases state the principal technique, for example gas chromatography.
- ² Give the result as the maximum value (or the minimum value in the case of a limit that is expressed as a minimum) obtained during the reporting period, expressed in the same terms as the emission limit value. Where the emission limit value is expressed as a range, give the result as the 'minimum to maximum' of the measured values.
- ³ For non-continuous measurements give the date and time of the sample that produced the result. For continuous measurements give the percentage of the process operating time covered by the result.
- ⁴ Complete if the uncertainty associated with the result is not a 95% confidence interval. Leave blank for 95% confidence intervals.

Water Usage Reporting Form

Permit number: EPR/BP3326SD

Operator: Acorn Bioenergy Operations Limited

Facility name: Three Maids AD Plant

Water Usage Reporting Form: version 1, 08/03/2021

Reporting of water usage for the year [YYYY]

Water source	Water usage (m ³)	Specific water usage (m ³ /unit) ²
Mains water	<i>[insert annual usage in m³ where mains water is used]</i>	<i>[insert annual usage in m³/unit where mains water is used]</i>
Site borehole	<i>[insert annual usage in m³ where water is used from a site borehole]</i>	<i>[insert annual usage in m³/unit where water is used from a site borehole]</i>
River abstraction	<i>[insert annual usage in m³ where abstracted river water is used]</i>	<i>[insert annual usage in m³/unit where abstracted river water is used]</i>
Other – <i>[specify other water source where applicable. Add extra rows where needed]</i>	<i>[insert annual usage in m³ where applicable]</i>	<i>[insert annual usage in m³/unit where applicable]</i>
Total water usage	<i>[insert total annual water usage in m³]</i>	<i>[insert total annual water usage in m³/unit]</i>

Operator's comments

Signed: *[Name]*

Date: *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report your annual water usage.

Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. Add additional rows as necessary.

Energy Usage Reporting Form

Permit number: EPR/BP3326SD

Operator: Acorn Bioenergy Operations Limited

Facility name: Three Maids AD Plant

Energy Usage Reporting Form: version 1, 08/03/2021

Reporting of energy usage for the year [YYYY]

Energy source	Energy consumption / production (MWh)	Specific energy consumption (MWh/unit) ²
Electricity imported as delivered - source [specify source, e.g. supplied from the national grid]	<i>[insert annual consumption in MWh where electricity is imported]</i>	<i>[insert annual consumption in MWh/unit where electricity is imported]</i>
Electricity imported as primary energy 1 – conversion factor of [specify conversion factor used to convert electricity delivered to primary energy]	<i>[insert annual consumption in MWh where electricity is imported]</i>	<i>[insert annual consumption in MWh/unit where electricity is imported]</i>
Natural gas	<i>[insert annual consumption in MWh where natural gas is used]</i>	<i>[insert annual consumption in MWh/unit where natural gas is used]</i>
Gas oil – conversion factor of [specify conversion factor used to convert tonnes to MWh]	<i>[insert annual consumption in MWh where gas oil is used]</i>	<i>[insert annual consumption in MWh/unit where gas oil is used]</i>
Imported heat	<i>[insert annual consumption in MWh where heat is imported]</i>	<i>[insert annual consumption in MWh/unit where heat is imported]</i>
Other – <i>[specify other energy source and conversion factors where applicable, e.g. renewable fuel. Add extra rows where needed]</i>	<i>[insert annual consumption in MWh where applicable]</i>	<i>[insert annual consumption in MWh/unit where applicable]</i>
Electricity exported	<i>[insert annual production in MWh where electricity is exported]</i>	Not applicable
Heat exported	<i>[insert annual production in MWh where heat is exported]</i>	Not applicable

Operator's comments

Signed: *[Name]*

Date: *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report your annual energy usage.

Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. Add additional rows as necessary.

- ¹ Multiply delivered electricity by 2.4 to convert to primary energy where the electricity is supplied from the national grid. If the electricity is supplied from another source, specify the conversion factor used. Add additional rows as needed if electricity is imported from multiple sources.
- ² Divide energy consumption by an appropriate unit of raw material processed or product output.

Other Performance Parameters Reporting Form

Permit number: EPR/BP3326SD

Operator: Acorn Bioenergy Operations Limited

Facility name: Three Maids AD Plant

Other Performance Parameters Reporting Form: version 1, 08/03/2021

Reporting of other performance parameters for the period from *[DD/MM/YY]* to *[DD/MM/YY]*

Parameter	Units
<i>[e.g. Total raw material usage]</i>	<i>[e.g. tonnes per production unit]</i>

Operator's comments

Signed: *[Name]*

Date: *[DD/MM/YY]*

(Authorised to sign as representative of the operator)

Guidance for use: Use this form to report the performance parameters (other than water and energy) required by your permit. Example text is shown in bracketed grey italics. Replace the example text by entering your own site specific information. The parameters to report and units to be used can be found in the 'Performance parameters' table in schedule 4 of your permit. Add additional rows as necessary.