

Notice of variation and consolidation with introductory note

The Environmental Permitting (England & Wales) Regulations 2016

Rainworth Energy Limited

Stud Farm Anaerobic Digestion Facility
Stud Farm
Rufford
Nottinghamshire
NG22 9HB

Variation application number

EPR/NP3233DH/V004

Permit number

EPR/NP3233DH

Stud Farm Anaerobic Digestion Facility

Permit number EPR/NP3233DH

Introductory note

This introductory note does not form a part of the notice

Under the Environmental Permitting (England & Wales) Regulations 2016 (schedule 5, part 1, paragraph 19) a variation may comprise a consolidated permit reflecting the variations and a notice specifying the variations included in that consolidated permit.

Schedule 1 of the notice specifies the conditions that have been varied and schedule 2 comprises a consolidated permit which reflects the variations being made. All the conditions of the permit have been varied and are subject to the right of appeal.

Changes introduced by this variation notice/statutory review

The Industrial Emissions Directive (IED) came into force on 7 January 2014 with the requirement to implement all relevant Best Available Techniques (BAT) Conclusions as described in the Commission Implementing Decision. Article 21(3) of the IED requires the Environment Agency to review conditions in permits that it has issued and to ensure that the permit delivers compliance with relevant standards, within four years of the publication of updated decisions on Best Available Techniques (BAT) Conclusions. The BAT Conclusions for Waste Treatment (the BREF) was published on 17 August 2018 following a European Union wide review of BAT, implementing decision (EU) 2018/1147 of 10 August 2018.

The scope of the permit review also covers the assessment of:

- the bioaerosols monitoring and compliance with M9 bioaerosols monitoring requirements;
- the design and construction of secondary containment and storage lagoons;
- the available storage facilities and measures to reduce ammonia emissions from storage; and
- information on existing medium combustion plant and/or specified generators on site.

This variation has been issued to update some of the conditions following a statutory review of the permits in the industry sector for biowaste treatment. The opportunity has also been taken to consolidate the original permit and subsequent variations.

Brief description of the process

The main features of the permit are as follows:

The facility is located approximately 2.5km south of Rufford and approximately 2.5km northwest of Eakring in Nottinghamshire at National Grid Reference SK 65365 63144. The site itself is situated on arable farmland. To the north and west of the site are agricultural fields used for arable crops. To the south of the site is a mature tree belt, and to the east of the site are a series of poultry units.

The facility comprises of the following operations:

- Anaerobic digestion plant (two digesters)
- A silage clamp
- A manure storage building and walled storage area for solid digestate
- Combustion plant consisting of one combined heat and power (CHP) engine (0.6MW), one biogas boiler (0.3MW) and one emergency flare
- Two storage lagoons (liquid digestate and surface water storage)
- Other ancillary plant (Mississippi paddle drier, separator, economiser, feed hopper and macerator)

Deliveries of maize, rye and straw are stored in a sealed silage clamp. Manure is stored in an enclosed building fitted with odour abatement. The feedstock is loaded onto feeding hoppers to ensure the optimum

particle size is achieved prior to digestion. The macerated feedstock is delivered from the feeding hopper to the digesters; leachate from the silage clamp is collected in a liquid holding tank prior to transfer into the digesters. The final feedstock undergoes anaerobic digestion at temperatures between 40°C and 42°C for up to 80 days combined residence time.

A small proportion of the biogas drawn from the digesters is used to generate electricity and heat via the CHP engine to power the facility. The remainder of the biogas is transferred via underground pipeline to power an off-site CHP engine located approximately 2km to the north of the AD facility. The by-product from the AD process (whole digestate) is separated in an enclosed system. The liquid fraction is further dried to reduce the moisture content and pumped to an on-site covered storage lagoon prior to removal off-site. The solid fraction is removed for use as a fertiliser off-site. The environmental permit does not authorise the spreading of digestate (solid or liquid) on land.

The main emissions to the environment are to air via the processing of feedstock, combustion of biogas (CHP engine, biogas boiler and emergency flare) and through the drying of liquid digestate. Biogas is burned in the emergency flare in the event that it cannot be utilised by the CHP engine or transferred to the off-site CHP engine.

The schedules specify the changes made to the permit.

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

| Status log of the permit | | |
|--|--|---|
| Description | Date | Comments |
| Application EPR/NP3233DH/A001 | Duly made 02/09/2016 | Application for an anaerobic digestion facility with combustion of biogas. |
| Additional information received | 24/10/2016 | Part response to schedule 5 notice dated 26/09/16 |
| Additional information received | 14/11/2016 | Full response to schedule 5 notice dated 26/09/16 |
| Additional information received | 14/11/2016 | Clarification of air quality assessment and odour abatement |
| Additional information received | 30/11/2016 | Clarification of location of biogas flow meter and thermal input of economiser boiler. |
| Permit determined | 01/12/2016 | Permit issued to Rainworth Energy Limited. |
| Application EPR/NP3233DH/V002 (Minor technical variation) | Duly made 05/10/2017 | Application to increase annual permitted waste types for anaerobic digestion tonnage from 10,000 to 20,000 and update the permit in terms of partial replacements for some of the existing biomass feedstock. |
| Variation determined EPR/NP3233DH/V002 | 02/11/2017 | Varied permit issued. |
| Notified of change of registered office address | 24/03/2021 | Registered office address changed to C/O Material Change, The Watering Farm, Creting St. Mary, Ipswich, Suffolk, IP6 8ND |
| Variation issued EPR/NP3233DH/V003 | 30/03/2021 | Varied permit issued to Rainworth Energy Limited |
| Regulation 61 Notice sent to Operator | 22/04/2021 | Regulation 61 Notice requiring information for statutory review of permit. |
| Regulation 61 Notice response | 15/10/2021 | Response received from the operator. |
| Application EPR/NP3233DH/V004 (variation and consolidation) | Environment Agency Initiated Variation | Statutory review of permit occasioned by Waste Treatment BAT Conclusions published on 17 August 2018. |

| Status log of the permit | | |
|---|-------------|--|
| Description | Date | Comments |
| Environment Agency Biowaste Treatment Sector Review Permit reviewed Variation determined EPR/NP3233DH (Billing Ref: HP3501MC) | 30/03/2023 | Varied and consolidated permit issued. |

End of introductory note

Notice of variation and consolidation

The Environmental Permitting (England and Wales) Regulations 2016

The Environment Agency in exercise of its powers under regulation 20 of the Environmental Permitting (England and Wales) Regulations 2016 varies and consolidates

Permit number

EPR/NP3233DH

Issued to

Rainworth Energy Limited (“the operator”)

whose registered office is

**C/O Material Change
The Watering Farm
Creting St. Mary
Ipswich
Suffolk
IP6 8ND**

company registration number 09516163

to operate a regulated facility at

**Stud Farm Anaerobic Digestion Facility
Stud Farm
Rufford
Nottinghamshire
NG22 9HB**

to the extent set out in the schedules.

The notice shall take effect from 30/03/2023

| Name | Date |
|----------------|------------|
| Rebecca Warren | 30/03/2023 |

Authorised on behalf of the Environment Agency

Schedule 1

All conditions have been varied by the consolidated permit as a result of an Environment Agency initiated variation.

Schedule 2 – consolidated permit

Consolidated permit issued as a separate document.

Permit

The Environmental Permitting (England and Wales) Regulations 2016

Permit number

EPR/NP3233DH

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/NP3233DH/V004 authorising,

Rainworth Energy Limited (“the operator”),

whose registered office is

C/O Material Change

The Watering Farm

Creeping St. Mary

Ipswich

Suffolk

IP6 8ND

company registration number 09516163

to operate an installation at

Stud Farm Anaerobic Digestion Facility

Stud Farm

Rufford

Nottinghamshire

NG22 9HB

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

| Name | Date |
|----------------|------------|
| Rebecca Warren | 30/03/2023 |

Authorised on behalf of the Environment Agency

Conditions

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.

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.

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.

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) 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.

3.3.2 The operator shall:

- (a) if notified by the Environment Agency that the activities are giving rise to pollution outside the site due to odour, submit to the Environment Agency for approval within the period specified, an odour management plan which identifies and minimises the risks of pollution from odour;
- (b) implement the approved odour management plan, from the date of approval, unless otherwise agreed in writing by the Environment Agency.

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;
- (b) process monitoring specified in table S3.2

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 table S3.1 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 Pests

3.6.1 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.

3.6.2 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.

3.7 Fire prevention

3.7.1 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.

3.7.2 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.

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

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.

4.2 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 reoccurrence 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 the 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 two 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 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 or despatch off site for recovery. Pre-treatment of waste in enclosed building fitted with appropriate odour abatement and on an impermeable surface with a sealed drainage system |

| 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 |
| | | | <p>including shredding, sorting, screening, compaction, baling, mixing and maceration.</p> <p>Post-treatment of digestate in an enclosed building fitted with appropriate odour abatement and on an impermeable surface with a sealed drainage system, including screening to remove contraries, centrifuge or pressing and addition of thickening agents (polymers) or drying for use as a fertiliser or soil conditioner (drying for the purpose of use as a fuel is not permitted).</p> <p>Gas cleaning by biological or physical (carbon filtration) or chemical scrubbing.</p> <p>Waste types suitable for acceptance are limited to those specified in Table S2.2.</p> |
| AR4 | Steam and electrical power supply | R1: Use principally as a fuel to generate energy | <p>From the receipt of biogas produced at the on-site anaerobic digestion process to combustion with the release of combustion gases.</p> <p>Combustion of biogas in one combined heat and power (CHP) engine(s) with an aggregated thermal input of 0.6 MWth.</p> <p>Combustion of biogas in one auxiliary boiler with an aggregated thermal input of 0.3MWth.</p> |
| 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. |

| 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 |
| | | | Use of one auxiliary flare required only during periods of breakdown or maintenance of the CHP engine, biogas upgrading plant and/or auxiliary boiler. |
| 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 injection into the National Grid. This includes return of off-specification biogas for combustion to the on-site CHP engine, auxiliary boiler and/or emergency flare. |
| 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 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, pending collection, on the site where it is produced) | From the receipt of processed uncertified digestate produced from the on-site anaerobic digestion process to despatch for use off-site. Storage of processed uncertified liquid digestate in one covered lagoon. Storage of processed uncertified solid digestate under cover or sheeted and on an impermeable surface with a sealed drainage system. |
| AR10 | Digestate treatment | Composting of solid digestate fibre | From the receipt of processed solid digestate fibre produced from the on-site anaerobic digestion |

| 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 |
| | | R3: Recycling/reclamation of organic substances which are not used as solvents | process to treatment via composting and despatch for use off-site. |
| AR11 | Surface water collection and storage | Collection and storage of uncontaminated roof and site surface water in one storage lagoon. | From the collection of uncontaminated roof and site surface water from non-operational areas only to re-use within the facility or discharge off-site. |
| AR12 | Air treatment | Collection and treatment of air from the buildings or plant using abatement system – [biofilters, carbon filters, acid scrubbers, particulate filters etc.] 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/NP3233DH/A001 | Stud Farm Anaerobic Digestion Facility – Technical Report document in response to section 3a – technical standards, Part B of the application form. | 02/09/2016 |
| Response to Schedule 5 Notice dated 26/09/16 | Response to questions 1 to 10 detailing site operations; Response to questions 14 to 17 detailing site drainage and secondary containment; Response to questions 18 to 22 detailing management of fugitive emissions; Response to questions 23 to 24 detailing management of accidents; and Response to questions 25 to 28 detailing site CHP configuration and management of underground biogas pipeline. | 24/10/2016 |
| Additional information | Clarification of odour abatement configuration. | 14/11/2016 |
| Additional information | Clarification of location of biogas flow meter and thermal input of Economiser boiler. | 30/11/2016 |
| Response to Regulation 61 Notice dated 22/04/2021 | <ul style="list-style-type: none"> • Annex 1 Returns Spreadsheet • Compliance and operating techniques identified in response to BAT Conclusions 1 to 8, 10 to 24 and 33 to 38 in the Waste Treatment BREF published on 17 August 2018. | Received 15/10/2021 |

| Table S1.3 Improvement programme requirements | | |
|---|--|---|
| Reference | Requirement | Date |
| Improvement condition for primary containment | | |
| IC1 | <p>The operator shall submit a written 'primary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of an inspection and program of works undertaken by a qualified 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 plan 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 preventative maintenance and inspection regime <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p> | 30/03/2024 or other date as agreed in writing with the Environment Agency |
| Improvement condition for secondary containment design | | |
| IC2 | <p>The operator shall submit a written 'secondary and tertiary containment plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of an inspection and program of works undertaken by a competent structural engineer, in accordance with the risk assessment methodology detailed within CIRIA C736 (2014) guidance, of the condition and extent of secondary and tertiary containment systems where all polluting liquids and solids are being stored, treated, and/or handled.</p> <p>The inspection shall consider, but not be limited to, the storage vessels, bunds, loading and unloading areas, transfer pipework/pumps, temporary storage areas, and liners underlying the site.</p> <p>The plan shall include:</p> <ul style="list-style-type: none"> • an assessment of the physical condition of all secondary and/or tertiary containment systems, using a Written Scheme of Examination and their suitability for providing 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 for the secondary and/or tertiary containment systems to comply with CIRIA C736 (2014) guidance, or equivalent. • a preventative maintenance and inspection regime | 30/03/2024 or other date as agreed in writing with the Environment Agency |

| Table S1.3 Improvement programme requirements | | |
|---|--|---|
| Reference | Requirement | Date |
| | The plan shall be implemented in accordance with the Environment Agency's written approval. | |
| Improvement condition for storage lagoon design including lagoon cover | | |
| IC3 | <p>The operator shall submit a written 'storage lagoon plan' and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of an inspection and program of works undertaken by a competent structural engineer, in accordance with the risk assessment methodology detailed within CIRIA C736 (2014) guidance, of the condition and extent of the site lagoon(s) where digestate is being stored, treated, and/or handled.</p> <p>The inspection shall consider, but not be limited to, the transfer pipework/pumps, and liners underlying the storage lagoon.</p> <p>The plan shall include:</p> <ul style="list-style-type: none"> • an assessment of the physical condition of the storage lagoon, using a Written Scheme of Examination and the suitability for providing containment when subjected to the dynamic and static loads caused by the digestate; • a program of works with timescales for the implementation of individual improvement measures necessary for the storage lagoon to comply with CIRIA C736 (2014) guidance, or equivalent. • a preventative maintenance and inspection regime • Existing cover arrangements on storage lagoons used to store digestate to minimise odour, ammonia and methane emissions <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p> | 30/03/2024 or other date as agreed in writing with the Environment Agency |
| Improvement condition for operational contingency storage capacity | | |
| IC4 | <p>The operator shall provide a written "operational contingency storage plan" and shall obtain the Environment Agency's written approval to it. The plan shall contain the results of a review of the current storage of digestate 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 contingency 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 – identify companies /permitted waste facilities that would be able to manage the digestate output, taking into account their permits and capacity constraints. <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p> | 30/03/2024 or other date as agreed in writing with the Environment Agency |
| Improvement condition for review of effectiveness of abatement plant | | |

| Table S1.3 Improvement programme requirements | | |
|---|---|---|
| Reference | Requirement | Date |
| IC5 | <p>The operator shall carry out a review of the 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 including but not limited to 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. • Abatement stack monitoring results (not limited to odour and ammonia) • Abatement process monitoring results (not limited to odour and ammonia) • 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). • Odour monitoring results at the site boundary • 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> | 30/03/2024 or other date as agreed in writing with the Environment Agency |
| Improvement condition for assessment of methane slip | | |
| IC6 | <p>The operator shall establish the methane emissions in the exhaust gas from engines burning biogas and compare these to the manufacturer’s specification and benchmark levels agreed in writing with the Environment Agency. The operator shall, as part of the methane leak detection and repair (LDAR) programme, develop proposals to assess the potential for methane slip and take corrective actions where emissions above the manufacturer’s specification or appropriate benchmark levels are identified.</p> | 30/03/2024 or other date as agreed in writing with the Environment Agency |

Schedule 2 – Waste types, raw materials and fuels

| Table S2.1 Raw materials and fuels | |
|--|--|
| Raw materials and fuel description | Specification |
| Straw, maize silage, whole crop rye, barley, sugar beet pulp | Substantially free of non-vegetable matter |
| Fuel oil | Sulphur content not exceeding 0.1% by mass |

| Table S2.2 Permitted waste types and quantities for anaerobic digestion | |
|---|--|
| Maximum quantity | Annual throughput shall not exceed 20,000 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 06 | animal faeces, urine and manure (including spoiled fully biodegradable animal bedding) |

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 |
| A1 [Point A1 on 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 | 350 mg/m ³ [note 2] | | | BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur |
| | | Sulphur dioxide | 162 mg/m ³ [note 3] | | | |
| | | Carbon monoxide | 1400 mg/m ³ | | | BS EN 15058 |
| | | Total VOCs | No limit set | -- | -- | BS EN 12619 |
| A5 [Point A5 on site plan in Schedule 7] | Boiler 1 stack [burning biogas] [note 1] | Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) | 250 mg/m ³ [note 3] | Average over sample period | Annual | BS EN 14792 |
| | | Sulphur dioxide | 200 mg/m ³ [note 3] | | | BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur |
| A2 [Point A2 on site plan in schedule 7] | Emergency flare stack [note 5] | Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂) | 150 mg/m ³ | Average over sample period | [note 6] | BS EN 14792 |
| | | Carbon monoxide | 50 mg/m ³ | | | BS EN 15058 |
| | | Total VOCs | 10 mg/m ³ | | | BS EN 12619 |
| A4 [Point A4 on site | Biofilter vents | Hydrogen sulphide | No limit set | Average over sample period | Once every 6 months | CEN TS 13649 for sampling |

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 |
|--------------------------------|-------------------------------------|---------------------------------------|------------------------|---------------------------------|----------------------|-------------------------------|
| plan in schedule 7] | | | | | | NIOSH 6013 for analysis |
| | | Ammonia | 20 mg/m ³ | Average over sample period | Once every 6 months | EN ISO 21877 |
| | | Odour concentration | No limit set | -- | Once every 6 months | BS EN 13725 |
| Pressure relief valves | Digesters/Digestate storage tank(s) | Biogas release and operational events | No limit set | Recorded duration and frequency | Daily inspection | -- |
| Vents from tank(s) | Oil/Fuel Storage tank(s) | No parameter set | No limit set | -- | -- | -- |
| Vent from Economizer | Economizer | No parameter set | No limit set | -- | -- | -- |
| Vents from lagoon | Digestate storage lagoon | No parameter set | No limit set | -- | -- | -- |

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 burning biogas) and oxygen 3% (for medium combustion plants other than engines and gas turbines burning biogas).

Note 2 – This emission limit applies until 31 December 2029, unless the gas engine is replaced.

Note 3 – This emission limit applies from 1 January 2030, unless otherwise advised by the Environment Agency.

Note 4 – This emission limit applies from 1 January 2025, unless otherwise advised by the Environment Agency.

Note 5 – These emission limits are based on normal operating conditions and load - temperature 0°C (273K); pressure 101.3 kPa and oxygen 3%.

Note 6 – 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.

| Table S3.2 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 | | | |
| Digesters and storage tanks | Integrity checks | Weekly | Visual assessment | In accordance with design |

| | | | | |
|---|---------------------------------------|--|---|---|
| | | | | specification and tank integrity checks. |
| Digesters | 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; Digesters and storage tanks | 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 | BS EN 15446 In accordance with the LDAR programme | 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 | 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 | |
| | 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 | <p>Recorded duration and frequency.</p> <p>Recording using a SCADA system or similar system</p> | 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. |
| | 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 | Operator must ensure that valves are re-seated after release, after a foaming event or sticking, build-up of debris, obstructions or damage. Operator must ensure that PRV function remains within designed operation gas pressure in accordance with the manufacturer's design by suitably |

| | | | | |
|-----------------------------------|---|------------|--|--|
| | | | | <p>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> |
| Biofilter 1 | Surface condition (signs of vegetation and channelling) | Daily | Visual assessment | <p>Odour abatement plant shall be regularly checked and maintained to ensure appropriate temperature and moisture content.</p> <p>Odour abatement plant shall be managed in accordance with permit condition 3.3, the odour management plan and manufacturer's recommendations .</p> <p>Equipment shall be calibrated on a 4 monthly basis, or as agreed in writing by the Environment Agency.</p> |
| | Gas temperature – inlet and outlet | Continuous | Temperature probe / Traceable to national standards | |
| | Biofilter media moisture | Daily | Moisture meter, Grab test, oven drying or recognised industry method | |
| | Thatching /compaction | Weekly | Back pressure | |
| | Gas flow rate – inlet and outlet | Continuous | Gas flow meter / EN 16911-1 and MID for EN 16911-1 | |
| | pH (biofilter drainage effluent) | Weekly | pH metre or litmus paper | |
| | Efficiency assessment | Annual | Media health, air-flow distribution | |

| | | | | |
|--|---|---|---|--|
| | | | and emission removal efficiency (BS EN 13725 for odour removal) | |
| | Hydrogen sulphide – inlet and outlet gas stream | Every 6 months or as agreed in writing by the Environment Agency. | As agreed in the odour management plan and approved by the Environment Agency | Action levels to be agreed on completion of IC9 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. | As agreed in the odour management plan and approved by the Environment Agency | Action levels to be agreed on completion of IC9 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 IC9 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. |
| Scrubber 1 | Gas flow rate – inlet and outlet | Continuous | Gas flow meter / EN 16911-1 and MID for EN 16911-1 | <p>Odour abatement plant shall be regularly checked and maintained to ensure appropriate temperature and moisture content.</p> <p>Odour abatement plant shall be managed in accordance with permit condition 3.3, the odour management plan and manufacturer's recommendations .</p> <p>Equipment shall be calibrated on a 4 monthly basis, or as agreed in writing by the Environment Agency.</p> |
| | Moisture content or humidity – inlet and outlet (for dry scrubbers only) | Daily | Moisture meter | |
| | Moisture content or humidity – outlet (for wet scrubbers if used before other abatement systems) | Daily | Moisture meter | |
| | Back pressure | Weekly | Pressure differential using sensors | |
| | 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 | |
| | 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 IC7 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 IC7 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. |

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 | Every 12 months | 1 January, 1 April, 1 July, 1 October |
| Emissions to air from odour abatement plant Parameters as required by condition 3.5.1. | A4 | Every 6 months | 1 January, 1 July |
| Process monitoring – digester tank integrity Parameters as required by condition 3.5.1 | As specified in schedule 3 table S3.2 | 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 S3.2 | Every 12 months Yearly summary report of over-pressure and under-pressure events detailing mass balance release | 1 January |
| Process monitoring – leak detection and repair (inspection, calibration and maintenance) Parameters as required by condition 3.5.1 | As specified in schedule 3 table S3.2 | Every 3 years | 1 January |
| Process monitoring – use of emergency flare Parameters as required by condition 3.5.1 | As specified in schedule 3 table S3.2 | Every 12 months | 1 January |
| Non-compostable contamination removal efficiency | -- | Every 12 months Yearly report of detailing contamination | |

| | | | |
|---|---------------------------------------|--|-----------|
| Parameters as required by conditions 2.3.4 and 2.3.7 | | removal efficiency and progress with plastic reduction contamination | |
| Total annual VOCs emissions from gas engines (calculated) | As specified in schedule 3 table S3.2 | Every 12 months | 1 January |

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

| 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 |
| Air | Form air 1 or other form as agreed in writing by the Environment Agency | 30/03/2023 |
| Process monitoring | Form process 1 or other form as agreed in writing by the Environment Agency | 30/03/2023 |
| Water usage | Form water usage 1 or other form as agreed in writing by the Environment Agency | 30/03/2023 |
| Energy usage | Form energy 1 or other form as agreed in writing by the Environment Agency | 30/03/2023 |
| Other performance indicators | Form performance 1 or other form as agreed in writing by the Environment Agency | 30/03/2023 |

| Table S4.4 Reporting forms | | |
|-----------------------------------|--|---------------------|
| Media/parameter | Reporting format | Date of form |
| 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 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.

“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:

- a) no liquids will run off the surface otherwise than via the system
- b) 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.

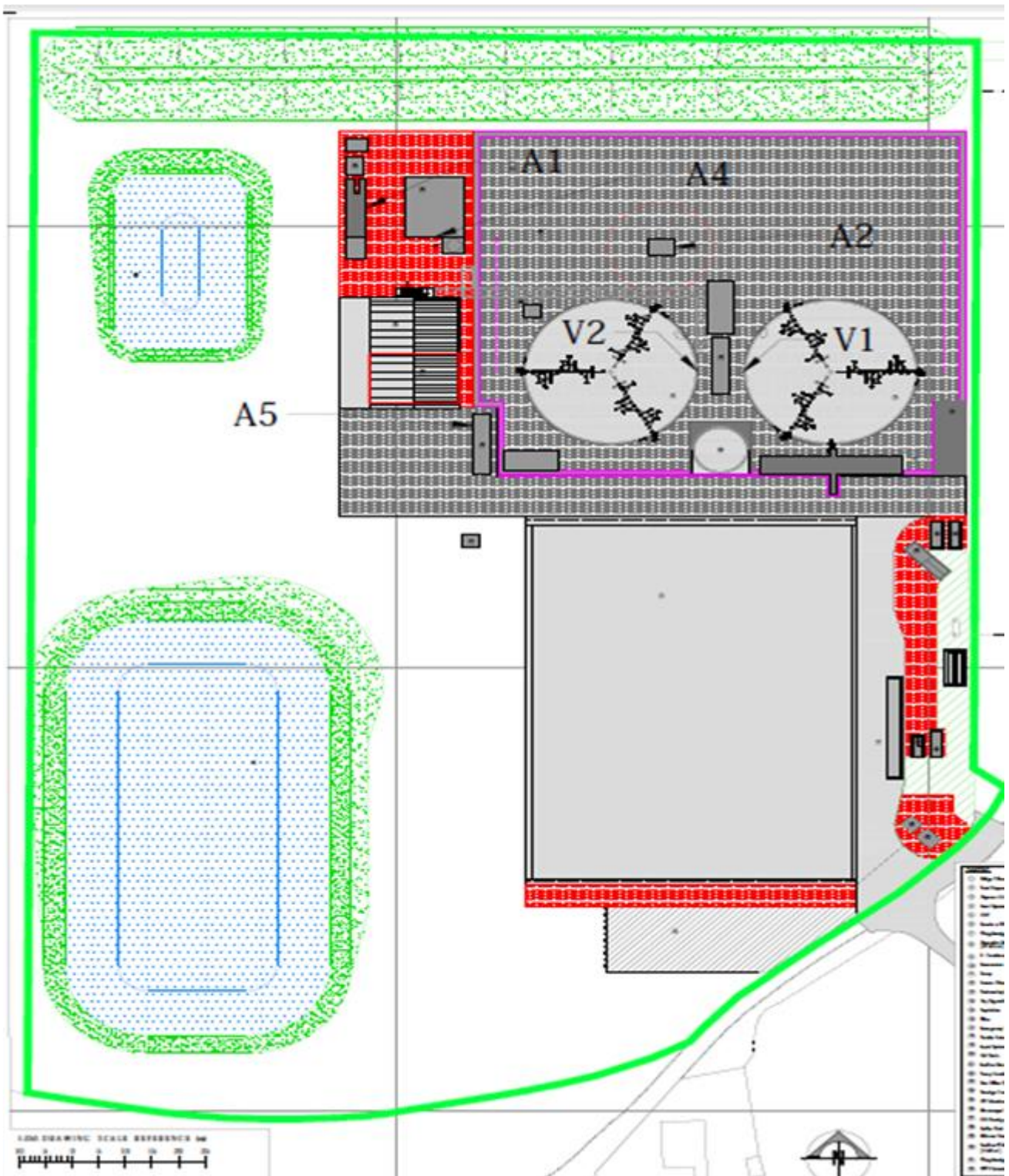
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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

- a) 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
- b) 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



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Annex 1 of MCP

| | |
|---|---|
| 1. Rated thermal input (MW) of the medium combustion plant. | CHP – 0.6MWth Auxiliary boiler – 0.3MWth |
| 2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant). | Combined Heat and Power Auxiliary Boiler |
| 3. Type and share of fuels used according to the fuel categories laid down in Annex II. | CHP – Biogas Auxiliary boiler – Biogas |
| 4. Date of the start of the operation of the medium combustion plant or, where the exact date of the start of the operation is unknown, proof of the fact that the operation started before 20 December 2018. | CHP – 2016 Boiler – 2016 |
| 5. Sector of activity of the medium combustion plant or the facility in which it is applied (NACE code). | 35.11 |
| 6. Expected number of annual operating hours of the medium combustion plant and average load in use. | 8760 |
| 7. Where the option of exemption under Article 6(3) or Article 6(8) is used, a declaration signed by the operator that the medium combustion plant will not be operated more than the number of hours referred to in those paragraphs. | N/A |
| 8. Name and registered office of the operator and, in the case of stationary medium combustion plants, the address where the plant is located. | N/A |

END OF PERMIT