

# Notice of variation and consolidation with introductory note

**The Environmental Permitting (England & Wales) Regulations 2016**

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Fernbrook Bio Limited  
Rothwell Lodge AD Facility  
Rothwell Lodge Farm  
Rothwell Road  
Kettering  
Northamptonshire  
NN16 8XF

**Variation application number**

EPR/EP3894SC/V010

**Permit number**

EPR/EP3894SC

# **Rothwell Lodge AD Facility**

## **Permit number EPR/EP3894SC**

### **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. Only the variations specified in schedule 1 are subject to a right of appeal.

#### **Changes introduced by this variation**

This variation allows for an increase of throughput from 49,000 tonnes per annum (tpa) to 100,000 tpa. To accommodate this increase, Fernbrook Bio will install two additional buffer tanks, two additional digesters, a new pasteurisation system and a new digestate storage tank. The reception building will be expanded and an additional non-waste feedstock line will be introduced. A new odour abatement system will be installed. Extracted air from the reception building will feed into an activated carbon filter system and the displaced air from the buffer tanks, pasteurisation system and digestate storage will pass through a biofilter before receiving extra cleaning through the activated carbon filter. The water scrubber currently used on site will be decommissioned once the new system is shown to be working effectively. An improvement condition has been added to the permit (IC11) to confirm that the new abatement systems are working efficiently and to confirm action levels. The odour management plan (OMP) has been updated through this variation and there is an improvement condition (IC12) to further update the OMP to include details of the frequency of routine maintenance of the biofilter and activated carbon abatement systems and to include the action levels as agreed through IC11.

The existing secondary containment lagoon will be re-engineered to ensure there is adequate secondary containment to accommodate the new tanks and infrastructure and ensure that the site is compliant with CIRIA C736. An improvement condition has been included (IC13) for the operator to provide a report containing details of the proposed works, prior to the commissioning of the improvement works.

In addition, the site will install new infrastructure to allow for the biogas generated on site to be upgraded, scrubbed and exported directly as biomethane into the national grid. Off-specification gas not suitable for direct injection into the national grid will be combusted using the existing on-site combined heat and power (CHP) engines.

The carbon dioxide (CO<sub>2</sub>) produced as a by-product from the gas upgrading process, will be fed into a new CO<sub>2</sub> liquefaction plant for capture and recovery. A new DAA has been included in Table S1.1 for this activity and a pre-operational condition for the operator to provide us with full technical and operational information before the CO<sub>2</sub> liquefaction plant can operate. A new emission point to air related to the plant has been added in Table S3.1.

The schedules specify the changes made to the permit.

We consider that in reaching our decision to vary the permit we have taken into account all relevant considerations and legal requirements. We are satisfied that the permit will ensure that a high level of protection is provided for the environment and human health and that the activities will not give rise to any significant pollution of the environment or harm to human health.

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/EP3894SC/A001	Duly made 12/10/2009	Application for an anaerobic digestion facility with combustion of resultant biogas.
Permit determined EPR/EP3894SC	12/02/2010	Bespoke permit issued to Fernbrook Bio Limited.
Application EPR/EP3894SC/V002 (variation)	Duly made 12/03/2012	Variation to add two waste codes – 02 04 99 and 19 05 99. Agency led variation also initiated in line with this change.
Variation determined EPR/EP3894SC	17/04/2012	Varied permit issued.
Application EPR/EP3894SC/V003	Duly made 23/09/2014	IED variation application.
Application EPR/EP3894SC/V004 (variation)	Duly made 26/05/2015	Application to increase tonnage and add permitted activity.
Additional information received	25/08/2015 and 19/10/2015	Response to Schedule 5 Notice dated 17/06/2015.
Variation determined EPR/EP3894SC	21/12/2015	Varied permit issued.
Application EPR/EP3894SC/V006 (variation)	Duly made 07/07/2016	Notified of change of company registered office address. Address changed to The Mine Site Mill Lane, South Witham, Grantham, Lincolnshire, NG33 5QN.
Variation determined EPR/EP3894SC	12/09/2016	Varied permit issued.
Variation determined EPR/EP3894SC (Duly made as EPR/EP3894SC/V003 and issued as EPR/EP3894SC/V006).	02/11/2017	Varied and consolidated permit issued in modern condition format.
Application EPR/EP3894SC/V007 (variation and consolidation)	Duly made 27/05/2020	Application to add nine waste codes and remove six waste codes. Environment Agency-led variation also initiated to remove 19 05 99 (compost liquor) and replace with 16 10 02.
Additional information received	06/07/2020	Response to Schedule 5 Notice dated 15/06/2020.
Variation determined EPR/EP3894SC	16/07/2020	Varied and consolidated permit issued.
Regulation 61 Notice sent to Operator	21/10/2019	Regulation 61 Notice requiring information for statutory review of permit.
Regulation 61 Notice response	20/03/2020	Response received from the operator.
Application EPR/EP3894SC/V008 (variation and consolidation)	Environment Agency Initiated Variation	Statutory review of permit occasioned by Waste Treatment BAT Conclusions published on 17 August 2018.
Environment Agency Biowaste Treatment Sector Review Permit reviewed Variation determined EPR/EP3894SC (Billing Ref: UP3802LK)	12/08/2021	Varied and consolidated permit issued.

Status log of the permit		
Description	Date	Comments
Application EPR/EP3894SC/V010 (variation and consolidation)	Duly made 16/06/2023	Application to vary and update the permit.
Additional information received	21/11/2023	Updated odour management plan, drainage and emission plans.
Additional information received	21/12/2023 22/12/2023	Updated management plan and details regarding secondary containment and CO <sub>2</sub> liquefaction.
Variation determined and consolidation issued EPR/EP3894SC	19/03/2024	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/EP3894SC

### Issued to

**Fernbrook Bio Limited** ("the operator")

whose registered office is

**Fernbrook Bio  
Rothwell Road  
Kettering  
NN16 8XF**

company registration number 06595831

to operate a regulated facility at

**Rothwell Lodge AD Facility  
Rothwell Lodge Farm  
Rothwell Road  
Kettering  
Northamptonshire  
NN16 8XF**

to the extent set out in the schedules.

The notice shall take effect from 19/03/2024

Name	Date
Daniel Timney	19/03/2024

Authorised on behalf of the Environment Agency

## **Schedule 1**

The following conditions have been varied by the consolidated permit EPR/EP3894SC/V010 as a result of the application made by the operator:

Table S1.1 – to adjust the number of tanks in AR1, to add the biofilter in AR11 and to add two new DAA's (AR12 and AR13).

Table S1.2 – to add documents supplied as part of this variation.

Table S1.3 – to add IC11, IC12 and IC13 and amend status of completed improvement conditions.

Table S2.2 – to amend the annual throughput.

Table S3.1 – to amend the emission point plan reference, to amend the emission point for the odour abatement to include the biofilter, amend the reference for the biogas upgrading unit, add an emission point for the CO<sub>2</sub> liquefaction plant and amend the source description for the pressure relief valves.

Table S3.2 – to amend the drainage plan reference for the soakaway from the containment area.

Table S3.3 – to add the biofilter.

Table S4.1 – to add the odour abatement emission point and include water reporting requirement.

Table S4.2 – to add CO<sub>2</sub> recovered.

Table S4.4 – to add water reporting form.

The following conditions have been added by the consolidated permit EPR/EP3894SC/V010 as a result of the application made by the operator:

Condition 2.5 – to add pre-operational condition.

Table S1.4 – to add pre-operational condition for future development table.

## **Schedule 2 – consolidated permit**

Consolidated permit issued as a separate document.

# Permit

## The Environmental Permitting (England and Wales) Regulations 2016

### Permit number

**EPR/EP3894SC**

This is the consolidated permit referred to in the variation and consolidation notice for application EPR/EP3894SC/V010 authorising,

**Fernbrook Bio Limited** ("the operator"),

whose registered office is

**Fernbrook Bio  
Rothwell Road  
Kettering  
NN16 8XF**

company registration number 06595831

to operate an installation at

**Rothwell Lodge AD Facility  
Rothwell Lodge Farm  
Rothwell Road  
Kettering  
Northamptonshire  
NN16 8XF**

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

Name	Date
Daniel Timney	19/03/2024

Authorised on behalf of the Environment Agency

# Conditions

## 1 Management

### 1.1 General management

- 1.1.0 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.
- 1.1.1 Records demonstrating compliance with condition 1.1.1 shall be maintained.
- 1.1.2 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.
- 1.1.3 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 operations specified in schedule 1 table S1.4 shall not commence until the measures specified in that table 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 tables 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) 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 and S3.2;
  - (b) process monitoring specified in table S3.3;
- 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 and S3.2 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.

## **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.

## 4.2 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.

## 4.3 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 four tanks followed by burning of biogas produced from the process.  Waste types suitable for acceptance are limited to those specified in Table S2.2.
<b>Directly Associated Activity</b>			
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.  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 and on impermeable surface with a sealed drainage system including shredding, sorting,



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>screening, compaction, baling, mixing and maceration.</p> <p>Post-treatment of digestate in an enclosed building and on an impermeable surface with 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>Heat treatment (pasteurisation) of waste in two tanks for the purpose of recovery.</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 2 combined heat and power (CHP) engines with an aggregated thermal input of 3.75 MWth.</p>
AR5	Emergency flare operation	D10: Incineration on land	<p>From the receipt of biogas produced at the on-site anaerobic digestion process to incineration with the release of combustion gases.</p>

<b>Table S1.1 activities</b>			
<b>Activity reference</b>	<b>Activity listed in Schedule 1 of the EP Regulations</b>	<b>Description of specified activity and WFD Annex I and II operations</b>	<b>Limits of specified activity and waste types</b>
			Use of one auxiliary flare required only during periods of breakdown or maintenance of the CHP engines and biogas upgrading plant.
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 engines 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)	Storage of whole digestate in a storage tank.  From the receipt of processed uncertified digestate produced from the on-site anaerobic digestion process to despatch for use off-site.
AR10	Surface water collection and storage	Collection and storage of uncontaminated roof and site surface water in attenuation pond and/or storage tanks.	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.
AR11	Air treatment	Collection and treatment of air from the buildings or plant using abatement system – biofilter, carbon filter(s) and water scrubber,	From the collection of air from site processes to treatment and release of treated air to atmosphere.

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
		prior to release to atmosphere.	
AR12	Storage of maize	Storage of non-waste maize crop in a bunker alongside digester 4.	From the delivery of maize to the storage prior to its use as feedstock into the digesters.
AR13	Carbon dioxide (CO <sub>2</sub> ) capture and recovery	Liquefaction of CO <sub>2</sub> through a process of compression, cooling and condensing of CO <sub>2</sub> gas.	From the receipt of CO <sub>2</sub> from the on-site gas upgrading plant (AR6) to the recovery of liquid CO <sub>2</sub> and its removal off-site via tanker. Storage of recovered CO <sub>2</sub> in one 63m <sup>3</sup> enclosed tank.

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	<p>The response to section 5a table 2 of Part B of the application form – technical standards</p> <ul style="list-style-type: none"> <li>Reference “K114.1~11~001 Issue 1: Simple Assessment of Environmental Risk for Odour, Noise and Fugitive Emissions for Rothwell Lodge Anaerobic Digestion Facility” in response to section 5b, table 3 – general requirements, Part B of the application form</li> <li>Reference “K114.1~11~002 Issue 1: Simple Assessment of Environmental Risk from Accidents for Rothwell Lodge Anaerobic Digestion Facility” and</li> <li>Reference “K114.1~11~001 Issue 1: Simple Assessment of Environmental Risk for Odour, Noise and Fugitive Emissions for Rothwell Lodge Anaerobic Digestion Facility” in response to section 5b, table 3 – general requirements, Part B of the application form;</li> <li>Reference “K114.1~11~001 Issue 1: Simple Assessment of Environmental Risk for Odour, Noise and Fugitive Emissions for Rothwell Lodge Anaerobic Digestion Facility” in response to section 5b, table 3 – general requirements, Part B of the application form;</li> <li>Reference “K114.1~11~001 Issue 1: Simple Assessment of Environmental Risk for Odour, Noise and Fugitive Emissions for Rothwell Lodge Anaerobic Digestion Facility” in response to section 5b, table 3 – general requirements, Part B of the application form.</li> </ul>	08/09/2009

Table S1.2 Operating techniques		
Description	Parts	Date Received
Application	<ul style="list-style-type: none"> <li>• Odour management plan reference "K114.1~09~006/V2 dated 11/02/10: Rothwell Lodge AD Facility Management Plan";</li> <li>• Accident management plan reference "K114.1~09~006/V2 dated 11/02/10: Rothwell Lodge AD Facility Management Plan";</li> <li>• Fugitive emissions management plan reference "K114.1~09~006/V2 dated 11/02/10: Rothwell Lodge AD Facility Management Plan";</li> <li>• Noise management plan reference "K114.1~09~006/V2 dated 11/02/10: Rothwell Lodge AD Facility Management Plan".</li> </ul>	11/02/2010
Variation Application	The response to section 3a Table 3a of Part C4 of the application form – technical standards. Additional guidance for Anaerobic Digestion LIT 8737	26/05/2015
Variation Application EPR/EP3894SC/V007	Response to Schedule 5 Notice dated 15/06/2020: <ul style="list-style-type: none"> <li>• K114.1~09~006_Environmental Permit Management Plan, v13 July 2020</li> <li>• FB_SOP002_Waste Storage v1.4 July 2020</li> <li>• FB_SOP004_Feedstock Storage v1.3 July 2020</li> <li>• FB_SOP002_Feeding the Plant v1.3 July 2020</li> <li>• FB_SOP002_Preventing Foam v1.2 July 2020</li> </ul>	06/07/2020
Response to Regulation 61 Notice dated 21/10/2019	<ul style="list-style-type: none"> <li>• Annex 1 Returns Spreadsheet</li> <li>• 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.</li> </ul>	Received 20/03/2020
Variation Application EPR/EP3894SC/V010	Response to request for further information letter dated 18/05/2023: <ul style="list-style-type: none"> <li>• K114.1~09~018 BAT Final</li> </ul>	Received 16/06/2023
Variation Application EPR/EP3894SC/V010	Response to Schedule 5 Notice dated 05/10/2023: <ul style="list-style-type: none"> <li>• FB_SOP012 Odour Control v1.5 November 2023</li> <li>• K114.1~20~009 Point Emissions Plan Rev D</li> <li>• E01A Proposed Drainage Layout</li> <li>• K114.1~11~002 Accident Management Plan v9</li> </ul>	Received 21/11/2023
Variation Application EPR/EP3894SC/V010	Response to additional queries related to Schedule 5 Notice dated 05/10/2023: <ul style="list-style-type: none"> <li>• K114.1~09~006 Management Plan v20</li> <li>• Email response to questions 16 and 17 (third row of table) regarding secondary containment capacity</li> </ul>	Received 21/12/2023

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
IC1	<p>The operator shall carry out a monitoring study to quantify the emissions in relation to the releases of pollutants to air from the installation. The study shall include the monitoring of point source releases to air from the biogas upgrading plant (emission point EXHAUST STACK 1) during normal operation, having regard to the Environment Agency technical guidance M2 and to MCERTS standards.</p> <p>Two separate monitoring campaigns in a year shall be completed as follows:</p> <ul style="list-style-type: none"> <li>• one monitoring campaign 6 months following operation of the biogas upgrading plant; and</li> <li>• one monitoring campaign 12 months following operation of the biogas upgrading plant.</li> </ul> <p>The following pollutants to be monitored shall include:</p> <ul style="list-style-type: none"> <li>• Total Volatile Organic Compounds (VOCs); and</li> <li>• Hydrogen sulphide</li> </ul>	Complete
IC2	<p>Following the completion of IC1, the operator shall undertake an environmental impact assessment of point source releases to air from the biogas upgrading plant (emission point EXHAUST STACK 1), using the information obtained through the emissions monitoring. The environmental impact assessment and all associated monitoring reports shall be submitted in writing to the Environment Agency for review.</p> <p>The environmental impact assessment shall include:</p> <ul style="list-style-type: none"> <li>• details of the monitoring undertaken and the results obtained;</li> <li>• results of the assessment of long and short term impacts from the emissions in accordance with Environment Agency technical guidance, <i>Monitoring stack emissions: techniques and standards for periodic monitoring</i></li> <li>• a completed H1 assessment software tool</li> </ul> <p>If the H1 assessment shows that long or short term impacts from the emissions do not screen out as insignificant, the operator shall propose an action plan to reduce the impacts of the substances identified.</p>	Complete
<b>Improvement condition for progress report to achieve BAT-AELs</b>		
IC3	<p>The operator shall submit, for approval by the Environment Agency, a report setting out progress to achieving the Best Available Techniques Conclusion Associated Emission Levels (BAT-AELs) where BAT is currently not achieved, but will be achieved before 17 August 2022. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> <li>1) Current performance against the BAT-AELs.</li> <li>2) Methodology for reaching the BAT-AELs.</li> <li>3) Associated targets /timelines for reaching compliance by 17 August 2022.</li> </ol>	Complete

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>4) Any alterations to the initial plan (in progress reports).</p> <p>The report shall address the BAT Conclusions for Waste Treatment with respect to the following:</p> <ul style="list-style-type: none"> <li>• <b>BAT 34 Table 6.7</b> (compliance with BAT-AELs for channelled NH<sub>3</sub>, odour, dust and TVOC emissions to air from the biological treatment of waste)</li> </ul> <p>Refer to BAT conclusions as described in the Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 and published 17 August 2018, for a full description of BAT requirement.</p>	
<b>Improvement condition for progress report to achieve Narrative BAT</b>		
IC4	<p>The operator shall submit, for approval by Environment Agency, a report setting out progress to achieving the 'Narrative' BAT where BAT is currently not achieved, but will be achieved before 17 August 2022. The report shall include, but not be limited to, the following:</p> <ol style="list-style-type: none"> <li>1) Methodology for achieving BAT</li> <li>2) Associated targets /timelines for reaching compliance by 17 August 2022</li> <li>3) Any alterations to the initial plan (in progress reports).</li> </ol> <p>The report shall address the BAT Conclusions for Waste Treatment with respect to BAT 2, 3, 8, 10, 14, 15, 19 and 23.</p> <p>Refer to BAT conclusions as described in the Commission Implementing Decision (EU) 2018/1147 of 10 August 2018 and published 17 August 2018, for a full description of BAT requirement.</p>	Complete
<b>Improvement condition for primary containment</b>		
IC5	<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"> <li>• 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;</li> <li>• 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</li> <li>• a preventative maintenance and inspection regime</li> </ul> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	Complete
<b>Improvement condition for secondary containment design</b>		

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC6	<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"> <li>• 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;</li> <li>• 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.</li> <li>• a preventative maintenance and inspection regime</li> </ul> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	Complete
<b>Improvement condition for operational storage capacity</b>		
IC7	<p>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 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 storage plan shall include:</p> <ul style="list-style-type: none"> <li>• Additional storage capacity on-site (at least 2 months storage) and storage capacity off-site;</li> <li>• Identification of alternative outlets for digestate – identify companies /permitted waste facilities that would be able to manage the digestate, taking into account their permits and capacity constraints.</li> </ul> <p>The plan shall be implemented in accordance with the Environment Agency's written approval.</p>	Complete
<b>Improvement condition for review of effectiveness of abatement plant</b>		

<b>Table S1.3 Improvement programme requirements</b>		
<b>Reference</b>	<b>Requirement</b>	<b>Date</b>
IC8	<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"> <li>• Full investigation and characterisation of the waste gas streams.</li> <li>• Abatement stack monitoring results (not limited to odour and ammonia)</li> <li>• Abatement process monitoring results (not limited to odour and ammonia)</li> <li>• 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).</li> <li>• Odour monitoring results at the site boundary</li> <li>• Records of odour complaints and odour related incidents</li> <li>• Recommendations for improvement including the replacement or upgrading the abatement plant</li> <li>• Timescales for implementation of improvements to the abatement plant</li> </ul> <p>The operator shall implement the improvements in line with the timescales as approved by the Environment Agency.</p>	Complete
<b>Improvement condition for review of abatement plant design</b>		
IC9	<p>The operator shall submit to the Environment Agency a written review report of the design details of the site ventilation system and abatement plant and obtain the Environment Agency’s written approval to it.</p> <p>The report shall include but not limited to:</p> <ol style="list-style-type: none"> <li>a) Ventilation design performance criteria for effective fugitive odorous emission control</li> <li>b) Design of the abatement systems that will ensure compliance with the odour condition 3.3. The report shall include a demonstration (whether by a detailed review of technical papers or by trial results) that all odorous chemical compounds and their loading rates expected in the relevant air streams have been considered in the design; and supporting evidence that the odorous compounds will be controlled and/or abated either by operating techniques or by the proposed abatement systems.</li> <li>c) Design alarms and triggers for each relevant scenario to alert the operator to the malfunction of both ventilation and abatement systems. The report should further list all relevant contingency mitigation actions to minimise risk of elevated</li> </ol>	Complete



Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
	<p>odour pollution from the installation linked to each malfunction scenario and detail the actions to restore systems to normal operating conditions for effective odour control.</p> <p>Ventilation and abatement systems should be designed by suitably qualified named engineers who can supervise and sign-off on construction quality assurance.</p>	
<b>Improvement condition for assessment of methane slip</b>		
IC10	<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>	Complete
<b>Improvement condition regarding the commissioning of odour abatement</b>		
IC11	<p>The operator shall submit a written report to the Environment Agency for assessment and written approval. The report must contain:</p> <ul style="list-style-type: none"> <li>• a review of the odour abatement (biofilter and carbon filter) installed as part of permit variation V010;</li> <li>• abatement stack monitoring results (not limited to odour and ammonia);</li> <li>• abatement process monitoring results (not limited to odour and ammonia);</li> <li>• a proposal for site-specific "action levels" (not limited to odour concentration, hydrogen sulphide and ammonia).</li> </ul> <p>The operator shall confirm to the Environment Agency the date of commissioning of the odour abatement systems.</p> <p>You must implement the proposals in the report in line with the timescales agreed with the Environment Agency.</p>	Three months from the date of commissioning of the activated carbon and biofilter odour abatement systems
<b>Improvement condition regarding the maintenance of odour abatement</b>		
IC12	<p>The operator shall submit a revised odour management plan (OMP) to the Environment Agency for assessment and written approval.</p> <p>The revised OMP must include further details regarding:</p> <ul style="list-style-type: none"> <li>• the routine maintenance programme for the activated carbon and biofilter odour abatement systems;</li> <li>• the action levels as confirmed in IC11 and agreed with the Environment Agency.</li> </ul> <p>The operator shall indicate to the Environment Agency which section(s) of the OMP have been updated.</p> <p>The operator must confirm that the above measures have been implemented in line with the timescales agreed with the Environment Agency.</p>	Three months following the completion of IC11

Table S1.3 Improvement programme requirements		
Reference	Requirement	Date
<b>Improvement condition for improvement of secondary containment</b>		
IC13	<p>The operator shall submit a written report to the Environment Agency for assessment and written approval prior to the commencement of any works.</p> <p>The report must contain:</p> <ul style="list-style-type: none"> <li>• A proposal for reconstructing the secondary containment lagoon, demonstrating that proposals meet appropriate CIRIA C736 standard;</li> <li>• A proposal for completing the recommendations on page 5 of the containment survey report completed by Geo Pollution Technologies (UK) Limited dated 28/02/2023;</li> <li>• A timescale of implementation of proposals.</li> </ul> <p>You must implement the proposals in the report in line with the timescales agreed with the Environment Agency.</p>	<p>Within three months of permit issue or other date as agreed in writing with the Environment Agency</p>

Table S1.4 Pre-operational measures for future development		
Reference	Operation	Pre-operational measures
PO1	CO <sub>2</sub> liquefaction plant	<p>At least eight weeks prior to the operation of the CO<sub>2</sub> liquefaction plant, the operator shall submit a written report detailing the technical and operational details of the CO<sub>2</sub> liquefaction plant to the Environment Agency for assessment and written approval.</p> <p>The report must contain:</p> <ul style="list-style-type: none"> <li>• A revised noise risk assessment incorporating the new CO<sub>2</sub> liquefaction plant;</li> <li>• A H1 assessment for the emission point CO<sub>2</sub> liquefaction plant in Table S3.1;</li> <li>• An updated emission point plan incorporating emission point CO<sub>2</sub> liquefaction plant in Table S3.1.</li> <li>• An updated accident risk assessment and safety and control measures, including details regarding staff training;</li> <li>• A BAT options appraisal showing that the most appropriate measures including monitoring requirements are being implemented in the CO<sub>2</sub> liquefaction plant;</li> <li>• Details regarding maintenance schedule for the CO<sub>2</sub> liquefaction plant.</li> </ul>

## 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 100,000 tonnes
<b>Exclusions</b>	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> <li>separately collected loads of plastic unless the whole load is certified compostable to BS EN13432</li> <li>co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432</li> <li>food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025.</li> <li>wastes containing wood-preserving agents or other biocides and post-consumer wood</li> <li>wastes containing persistent organic pollutants</li> <li>wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014</li> <li>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.</li> </ul>
Waste code	Description
<b>02</b>	<b>Wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing, food preparation and processing</b>
<b>02 01</b>	<b>wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing</b>
02 01 01	sludges from washing and cleaning – vegetables, fruit and other crops
02 01 02	animal tissue waste
02 01 03	plant tissue waste
02 01 06	animal faeces, urine and manure (including spoiled straw) only
02 01 07	wastes from forestry
02 01 99	residues from commercial mushroom cultivation
<b>02 02</b>	<b>wastes from the preparation and processing of meat, fish and other foods of animal origin</b>
02 02 01	sludges from washing and cleaning
02 02 02	animal tissue waste
02 02 03	materials unsuitable for consumption or processing
02 02 04	sludges from on-site effluent treatment

<b>Table S2.2 Permitted waste types and quantities for anaerobic digestion</b>	
<b>Maximum quantity</b>	<b>Annual throughput shall not exceed 100,000 tonnes</b>
<b>Exclusions</b>	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> <li>separately collected loads of plastic unless the whole load is certified compostable to BS EN13432</li> <li>co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432</li> <li>food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025.</li> <li>wastes containing wood-preserving agents or other biocides and post-consumer wood</li> <li>wastes containing persistent organic pollutants</li> <li>wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014</li> <li>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.</li> </ul>
<b>Waste code</b>	<b>Description</b>
<b>02 03</b>	<b>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</b>
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
<b>02 04</b>	<b>wastes from sugar processing</b>
02 04 03	sludges from on-site effluent treatment
<b>02 05</b>	<b>wastes from the dairy products industry</b>
02 05 01	materials unsuitable for consumption or processing
02 05 02	sludges from on-site effluent treatment
<b>02 06</b>	<b>wastes from the baking and confectionery industry</b>
02 06 01	materials unsuitable for consumption or processing
02 06 03	sludges from on-site effluent treatment
<b>02 07</b>	<b>wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)</b>
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials
02 07 02	wastes from spirits distillation
02 07 04	materials unsuitable for consumption or processing
<b>03</b>	<b>Wastes from wood processing and the production of panels and furniture, pulp, paper and cardboard</b>
<b>03 01</b>	<b>wastes from wood processing and the production of panels and furniture</b>
03 01 01	waste bark and cork
03 01 05	sawdust, shavings, cuttings, wood, particle board and veneer other than those mentioned in 03 01 04
<b>03 03</b>	<b>wastes from pulp, paper and cardboard production and processing</b>

<b>Table S2.2 Permitted waste types and quantities for anaerobic digestion</b>	
<b>Maximum quantity</b>	<b>Annual throughput shall not exceed 100,000 tonnes</b>
<b>Exclusions</b>	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> <li>separately collected loads of plastic unless the whole load is certified compostable to BS EN13432</li> <li>co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432</li> <li>food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025.</li> <li>wastes containing wood-preserving agents or other biocides and post-consumer wood</li> <li>wastes containing persistent organic pollutants</li> <li>wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014</li> <li>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.</li> </ul>
<b>Waste code</b>	<b>Description</b>
03 03 10	fibre rejects and sludges i.e. paper pulp (de-inked only), paper fibre
03 03 11	sludges from on-site effluent treatment other than those mentioned in 03 03 10
<b>04</b>	<b>Wastes from the leather, fur and textile industries</b>
<b>04 01</b>	<b>wastes from the leather and fur industry</b>
04 01 01	fleshings and lime split wastes
<b>04 02</b>	<b>wastes from the textile industry</b>
04 02 10	organic matter from natural products, e.g. grease, wax
<b>07</b>	<b>Wastes from organic chemical processes</b>
<b>07 01</b>	<b>wastes from the manufacture, formulation, supply and use (MFSU) of basic organic chemicals</b>
07 01 08*	glycerol waste from bio-diesel manufacture from non-waste vegetable oils only
<b>15</b>	<b>Waste packaging, absorbents, wiping cloths, filter materials and protective clothing not otherwise specified</b>
<b>15 01</b>	<b>packaging (including separately collected municipal packaging waste)</b>
15 01 01	paper and cardboard packaging – excludes laminates such as Tetrapaks and must conform to BS EN 13432 and not allowed if any non-biodegradable coating or preserving substance is present
15 01 03	untreated wooden packaging – not allowed if any non-biodegradable coating or preserving substance is present
15 01 05	composite packaging – must conform to BS EN 13432 and not allowed if any non-biodegradable coating or preserving substance is present
<b>16</b>	<b>Wastes not otherwise specified in the list</b>
<b>16 10</b>	<b>aqueous liquid wastes destined for off-site treatment</b>
16 10 02	liquor/leachate from a composting process that accepts waste input types listed in this table only
<b>19</b>	<b>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</b>

<b>Table S2.2 Permitted waste types and quantities for anaerobic digestion</b>	
<b>Maximum quantity</b>	<b>Annual throughput shall not exceed 100,000 tonnes</b>
<b>Exclusions</b>	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> <li>separately collected loads of plastic unless the whole load is certified compostable to BS EN13432</li> <li>co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432</li> <li>food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025.</li> <li>wastes containing wood-preserving agents or other biocides and post-consumer wood</li> <li>wastes containing persistent organic pollutants</li> <li>wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014</li> <li>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.</li> </ul>
<b>Waste code</b>	<b>Description</b>
<b>19 02</b>	<b>wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)</b>
19 02 03	waste types listed within this table, Table S2.2, that have been mixed together only
19 02 06	sludge types from waste listed within this table, Table S2.2, that have been heat treated only
19 02 10	glycerol not designated as hazardous i.e. excludes EWC code 19 02 08
<b>19 05</b>	<b>wastes from aerobic treatment of wastes</b>
19 05 01	non-composted fraction of municipal and similar wastes
19 05 02	non-composted fraction of animal and vegetable waste
19 05 03	off-specification compost from a composting process that accepts waste input types listed in this table, made up of previously sanitised batches only
<b>19 06</b>	<b>wastes from anaerobic treatment of waste</b>
19 06 03	liquor from anaerobic treatment of municipal waste (from a process that treats wastes which are listed in this table only)
19 06 04	digestate from anaerobic treatment of source segregated biodegradable waste (from a process that treats wastes which are listed in this table only)
19 06 05	liquor from anaerobic treatment of animal and vegetable waste (from a process that treats wastes which are listed in this table only)
19 06 06	digestate from anaerobic treatment of animal and vegetable waste (from a process that treats wastes which are listed in this table only)
<b>19 08</b>	<b>wastes from waste water treatment plants not otherwise specified</b>
19 08 09	grease and oil mixture from oil/water separation containing only edible oil and fats
19 08 12	sludges from biological treatment of industrial waste water (from a process that treats wastes which are listed in this table only).
<b>19 12</b>	<b>wastes from the mechanical treatment of waste (for example sorting, crushing, compacting, pelletising) not otherwise specified</b>
19 12 12	waste types listed in this table, Table S2.2, that have been subjected to mechanical treatment only (from a process that treats wastes which are listed in this table only).

<b>Table S2.2 Permitted waste types and quantities for anaerobic digestion</b>	
<b>Maximum quantity</b>	<b>Annual throughput shall not exceed 100,000 tonnes</b>
<b>Exclusions</b>	<p>Wastes having any of the following characteristics shall not be accepted:</p> <ul style="list-style-type: none"> <li>separately collected loads of plastic unless the whole load is certified compostable to BS EN13432</li> <li>co-mingled green and food waste containing more than 5% w/w plastic, unless the plastic is certified compostable to BS EN 13432</li> <li>food wastes containing more than 5% w/w plastic unless there is sufficient technology to remove non-compostable plastic prior to treatment from package food waste to a processing limit of 1% w/w or decreasing year on year by 2025.</li> <li>wastes containing wood-preserving agents or other biocides and post-consumer wood</li> <li>wastes containing persistent organic pollutants</li> <li>wastes containing Japanese Knotweed or other invasive plant species listed in the Alien Invasive Species Regulations 2014</li> <li>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.</li> </ul>
<b>Waste code</b>	<b>Description</b>
<b>20</b>	<b>Municipal wastes (household waste and similar commercial, industrial and institutional wastes) including separately collected fractions</b>
<b>20 01</b>	<b>separately collected fractions (except 15 01)</b>
20 01 01	paper and cardboard packaging – excludes laminates such as Tetrapaks and must conform to BS EN 13432 and not allowed if any non-biodegradable coating or preserving substance is present.
20 01 08	biodegradable kitchen and canteen waste
20 01 25	edible oil and fat
20 01 38	untreated wood where no non-biodegradable coating or preserving substance is present
<b>20 02</b>	<b>garden and park wastes (including cemetery waste)</b>
20 02 01	biodegradable waste
<b>20 03</b>	<b>other municipal wastes</b>
20 03 01	mixed municipal waste – only separately collected biodegradable wastes of types listed within this table, Table S2.2
20 03 02	waste from markets – allowed only if source segregated biodegradable fractions e.g. plant material, fruit and vegetables

## 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 (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
<b>Existing medium combustion plant which are engines fuelled on biogas (1 MW to 5 MW)</b>						
ENGINE 1 labelled on K114.1~20~00 9 Point Emissions Plan, dated 21/11/2023	CHP engine 1 stack [note 1]	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	500 mg/m <sup>3</sup>	Average over sample period	Annual	BS EN 14792
		Sulphur dioxide	350 mg/m <sup>3</sup> [note 2]			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur
		Sulphur dioxide	162 mg/m <sup>3</sup> [note 3]			
		Carbon monoxide	1400 mg/m <sup>3</sup>			BS EN 15058
		Total VOCs	No limit set	--	--	BS EN 12619
ENGINE 2 labelled on K114.1~20~00 9 Point Emissions Plan, dated 21/11/2023	CHP engine 2 stack [note 1]	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	500 mg/m <sup>3</sup>			BS EN 14792
		Sulphur dioxide	350 mg/m <sup>3</sup> [note 2]			BS EN 14791 or CEN TS 17021 or by calculation based on fuel sulphur
		Sulphur dioxide	162 mg/m <sup>3</sup> [note 3]			
		Carbon monoxide	1400 mg/m <sup>3</sup>			BS EN 15058
		Total VOCs	No limit set	--	--	BS EN 12619
FLARE 1 labelled as Gas Flare 1 on K114.1~20~00 9 Point	Emergency flare stack [note 4]	Oxides of Nitrogen (NO and NO <sub>2</sub> expressed as NO <sub>2</sub> )	150 mg/m <sup>3</sup>	Average over sample period	[note 5]	BS EN 14792



Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
Emissions Plan, dated 21/11/2023		Carbon monoxide	50 mg/m <sup>3</sup>			BS EN 15058
		Total VOCs	10 mg/m <sup>3</sup>			BS EN 12619
WATER SCRUBBER	Channelled emissions such as odour abatement stack or vents	Hydrogen sulphide	No limit set	Average over sample period	Once every 6 months	CEN TS 13649 for sampling  NIOSH 6013 for analysis
		Ammonia	20 mg/m <sup>3</sup>	Average over sample period	Once every 6 months	EN ISO 21877
		Odour concentration	No limit set	--	Once every 6 months	BS EN 13725
Odour abatement (Biofilter and carbon filters) from tanks and reception hall labelled as Common abatement stack on K114.1~20~009 Point Emissions Plan, dated 21/11/2023	Biofilter and carbon filters from tanks and reception hall	Hydrogen sulphide	No limit set	Average over sample period	Once every 6 months	CEN TS 13649 for sampling  NIOSH 6013 for analysis
		Ammonia	20 mg/m <sup>3</sup>	Average over sample period	Once every 6 months	EN ISO 21877
		Odour concentration	No limit set	--	Once every 6 months	BS EN 13725
Gas to grid stack labelled as G2G stack on K114.1~20~009 Point Emissions Plan, dated 21/11/2023	Biogas upgrading unit	VOCs including methane	No limit set	Leak detection and repair (LDAR) programme	In accordance with written management system	BS EN15446
CO <sub>2</sub> liquefaction plant emission point as referenced as	CO <sub>2</sub> liquefaction plant		No limit set	--	--	--

Table S3.1 Point source emissions to air – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference period	Monitoring frequency	Monitoring standard or method
PO1 in Table S1.4						
Pressure relief valves	All buffer tanks, digesters, digestate storage tank, gas upgrade unit and CO <sub>2</sub> storage tank	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	--	--	--
<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 burning biogas) and oxygen 3% (for medium combustion plants other than engines and gas turbines burning biogas).</p> <p>Note 2 – This emission limit applies until 31 December 2029, unless the gas engine is replaced.</p> <p>Note 3 – This emission limit applies from 1 January 2030, unless otherwise advised by the Environment Agency.</p> <p>Note 4 – These emission limits are based on normal operating conditions and load - temperature 0°C (273K); pressure 101.3 kPa and oxygen 3%.</p> <p>Note 5 – 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	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
Soakaway (marked on drawing External Works Layout Drainage Design Drawing reference EO2, revision P6 dated August 2009)	Uncontaminated surface drainage from external hardstanding areas via an oil interceptor (non-operational areas only)	Oil or grease	No visible oil or grease	--	Weekly	Visual assessment
	Uncontaminated drainage from the building roof (non-operational areas only)	Oil or grease	No visible oil or grease	--	Weekly	Visual assessment
Soakaway (marked as S3 and S4 on drawing Proposed Drainage Layout E01A)	Surface drainage from containment area	Oil or grease	No visible oil or grease	--	Weekly	Visual assessment
		Total organic carbon (TOC) [Note 1]	60 mg/l	Spot sample or flow-proportional composite sample	Once every month	BS EN 1484

Table S3.2 Point source emissions to water (other than sewer) and land – emission limits and monitoring requirements						
Emission point ref. & location	Source	Parameter	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
		Chemical oxygen demand (COD) [Note 1]	180 mg/l	Spot sample or flow-proportional composite sample	Once every month	BS EN ISO 15705
		Total nitrogen	25 mg/l	Spot sample or flow-proportional composite sample	Once every month	BS EN ISO 11905-1 or BS EN 12260
		Total phosphorus	2 mg/l	Spot sample or flow-proportional composite sample	Once every month	EN ISO 5681-1 and -2 or EN ISO 6878 or EN ISO 11885
		Total suspended solids	60 mg/l	Spot sample or flow-proportional composite sample	Once every month	BS EN 872
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	Process monitoring to be recorded using a

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
			measures Regulations	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 <sub>2</sub>	Continuous	None specified	
	O <sub>2</sub>	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	--
Digesters	Agitation /mixing	Continuous	Systems controls. Yearly lithium or thermal imaging	Records maintained in daily operational records.
	Tank capacity and sediment assessment	Once a year		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	In accordance with the LDAR programme	Leak detection and repair (LDAR) programme in accordance with permit condition 3.2.4.
CHP engine stacks	VOCs including methane	Annually	BS EN 12619	Total annual VOCs emissions from the CHP engines to be calculated and submitted to the Environment Agency.
	Exhaust gas temperature		Traceable to National Standards	
	Exhaust gas pressure		Traceable to National Standards	

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 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	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	Re-seating	Weekly inspection	Visual and gas pressure	<p>Continuous gas pressure shall be monitored.</p> <p>Operator must ensure that valves are re-seated after release in accordance with the manufacturer's design.</p>
	Maintenance	Written scheme of examination in accordance with condition 1.1.1	Written scheme of examination in accordance	<p>Continuous gas pressure shall be monitored.</p> <p>Operator must ensure that valves</p>

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
			with condition 1.1.1	are re-seated after release in accordance with the manufacturer's design.
	Inspection calibration and validation report	In accordance with design and construction specifications or after over topping or foaming event		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 trained/qualified personnel.  Inspection, calibration and validation report. In accordance with industry Approved Code of Practice
Storage tanks	Volume	Daily	Visual or flow metre measurement	--
<b>Water scrubber</b>	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
	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	manufacturer's recommendations.
	Efficiency assessment	Annual	Emission removal efficiency (BS EN 13725 for odour removal)	Equipment shall be calibrated on a 4 monthly basis, or as agreed in writing by the Environment Agency.
	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 IC8 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 IC8 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 IC8 as approved in writing by the Environment Agency.

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
				Action levels to be achieved in accordance with permit condition 3.2 and the odour management plan.
<b>Carbon filters</b>	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 manufacturer's recommendations.
	Gas flow rate – inlet and outlet	Continuous	Gas flow meter	
	Moisture or humidity	Daily	Moisture meter	
	Back pressure	Weekly	Recognised industry method	
	Efficiency assessment	Annual	Emission removal efficiency (BS EN 13725 for odour removal)	Carbon filters 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 IC8 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 IC8 as approved in



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
				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 IC8 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.
<b>Biofilter</b>	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.  Odour abatement plant shall be managed in accordance with permit condition 3.3, the odour management plan and manufacturer's recommendations.  Equipment shall be calibrated on a 4 monthly basis, or as agreed in
	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	

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
			removal efficiency (BS EN 13725 for odour removal)	writing by the Environment Agency.
	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 IC8 and IC11 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.
	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 IC8 and IC11 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 IC8 and IC11 as approved in writing by the Environment Agency.

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
				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.

<b>Table S4.1 Reporting of monitoring data</b>			
<b>Parameter</b>	<b>Emission or monitoring point/reference</b>	<b>Reporting period</b>	<b>Period begins</b>
Emissions to air from CHP engines Parameters as required by condition 3.5.1.	ENGINE 1, ENGINE 2,	Every 12 months	1 January
Emissions to air from emergency flare Parameters as required by condition 3.5.1.	FLARE 1	Every 12 months	1 January
Emissions to air from odour abatement plant Parameters as required by condition 3.5.1.	WATER SCRUBBER, Odour abatement (Biofilter and carbon filters)	Every 6 months	1 January, 1 July
Process monitoring Parameters as required by condition 3.5.1	As specified in schedule 3 table S3.3	Every 12 months	1 January
Total annual VOCs emissions from gas engines (calculated)	As specified in schedule 3 table S3.3	Every 12 months	1 January
Emissions to water Parameters as required by condition 3.5.1	Soakaway	Every 6 months	1 January, 1 July

<b>Table S4.2 Annual production/treatment</b>	
<b>Parameter</b>	<b>Units</b>
Electricity generated	MWh
Biomethane generated	tonnes or m <sup>3</sup>
Whole digestate	tonnes
Liquid digestate	tonnes or m <sup>3</sup>
Solid digestate	tonnes
Non-waste outputs	tonnes
CO <sub>2</sub> recovered	tonnes or m <sup>3</sup>

<b>Table S4.3 Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Water usage	Annually	tonnes or m <sup>3</sup>
Energy usage	Annually	MWh
Raw material usage	Annually	tonnes or m <sup>3</sup>
Emergency flare operation	Annually	hours

<b>Table S4.3 Performance parameters</b>		
<b>Parameter</b>	<b>Frequency of assessment</b>	<b>Units</b>
Electricity exported	Annually	MWh
Biomethane exported	Annually	tonnes or m <sup>3</sup>
CHP engine usage	Annually	hours
CHP engine efficiency	Annually	%

<b>Table S4.4 Reporting forms</b>		
<b>Media/parameter</b>	<b>Reporting format</b>	<b>Date of form</b>
Air	Form air 1 or other form as agreed in writing by the Environment Agency	12/08/2021
Process monitoring	Form process 1 or other form as agreed in writing by the Environment Agency	12/08/2021
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	12/08/2021
Energy usage	Form energy 1 or other form as agreed in writing by the Environment Agency	12/08/2021
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	12/08/2021
Waste returns	E-waste Return Form or other form as agreed in writing by the Environment Agency	--
Water	Form water 1 or other form as agreed in writing by the Environment Agency	19/03/2024

## 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	

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

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

<b>Time periods for notification following detection of a breach of a limit</b>	
<b>Parameter</b>	<b>Notification period</b>

<b>(c) Notification requirements for the detection of any significant adverse environmental effect</b>	
<b>To be notified within 24 hours of detection</b>	
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 CO<sub>2</sub>, H<sub>2</sub>O, 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.

“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.

“compostable plastics” means plastics that are certified to meet the standards of EN 13432, EN 14995 or equivalent and is capable of breaking down by microbial digestion to create compost.



“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.

“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.

“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 varnish).

“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.

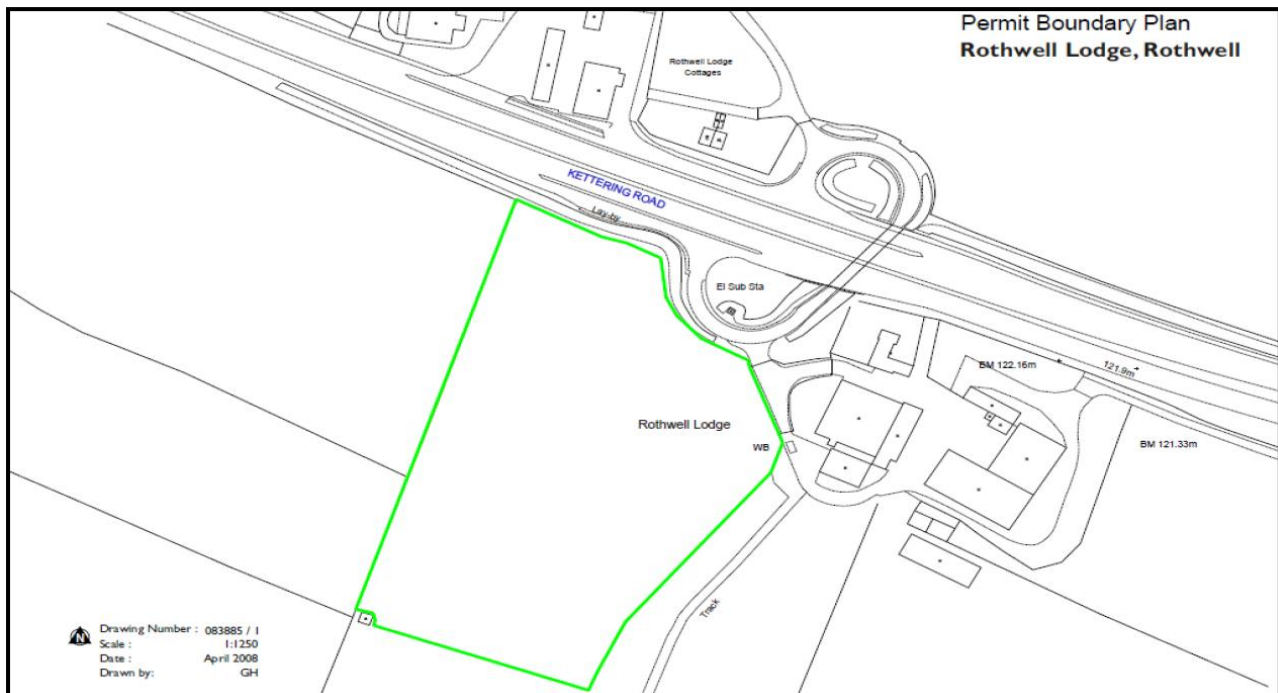
Where a minimum limit is set for any emission parameter, for example pH, reference to exceeding the limit shall mean that the parameter shall not be less than that limit.

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



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## Annex 1 of MCP

1. Rated thermal input (MW) of the medium combustion plant.	3.75MW (aggregated)
2. Type of the medium combustion plant (diesel engine, gas turbine, dual fuel engine, other engine or other medium combustion plant).	Combined Heat & Power Engine
3. Type and share of fuels used according to the fuel categories laid down in Annex II.	Biogas, 100%
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.	13/09/2010
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.	7971hrs @ 1.5mw/e
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.	Fernbrook Bio Limited Fernbrook Bio Rothwell Road Kettering NN16 8XF

END OF PERMIT

<b>Permit Number:</b>	<b>EPR/EP3894SC</b>	<b>Operator:</b>	<b>Fernbrook Bio</b>
<b>Facility:</b>	<b>Rothwell Lodge AD Facility</b>	<b>Form Number:</b>	<b>Water1 / 19/03/24</b>

**Reporting of emissions to water (other than to sewer) and land for the period from DD/MM/YYYY to DD/MM/YYYY**

<b>Emission Point</b>	<b>Substance / Parameter</b>	<b>Emission Limit Value</b>	<b>Reference Period</b>	<b>Result [1]</b>	<b>Test Method [2]</b>	<b>Sample Date and Times [3]</b>	<b>Uncertainty [4]</b>
Soakaway	Visible oil or grease	No visible oil or grease	Periodic as required by permit conditions.		Visual assessment		
	Total organic carbon (TOC)	60 mg/l	Periodic as required by permit conditions.		BS EN 1484		
	Chemical oxygen demand (COD)	180 mg/l	Periodic as required by permit conditions.		BS ISO 15705		
	Total nitrogen	25 mg/l	Periodic as required by permit conditions.		BS EN ISO 11905-1 or BS EN 12260		
	Total phosphorus	2 mg/l	Periodic as required by permit conditions.		EN ISO 5681-1 and -2 or EN ISO 6878 or EN ISO 11885		
	Total suspended solids	60 mg/l	Periodic as required by permit conditions.		BS EN 872		

[1] The result given is 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, the result is given as the 'minimum – maximum' measured values.

[2] Where an internationally recognised standard test method is used the reference number is given. Where another method that has been formally agreed with the Environment Agency is used, then the appropriate identifier is given. In other cases the principal technique is stated, for example gas chromatography.

[3] For non-continuous measurements the date and time of the sample that produced the result is given. For continuous measurements the percentage of the process operating time covered by the result is given.

[4] The uncertainty associated with the quoted result at the 95% confidence interval, unless otherwise stated.

Signed .....

Date.....

(Authorised to sign as representative of Operator)