

Permit with introductory note

The Environmental Permitting (England & Wales) Regulations 2010

Biogen (UK) Limited

Bygrave Lodge Anaerobic Digestion
Plant
Bygrave Lodge Farm
Nr Baldock
Hertfordshire
SG7 6QX

Permit number
EPR/VP3932EG

Bygrave Lodge Anaerobic Digestion Plant

Permit number EPR/VP3932EG

Introductory note

This introductory note does not form a part of the permit

The main features of the permit are as follows.

The installation is located at the grid reference TL27572 35569 on agricultural land adjacent to A505. The nearest property is located approximately 520m south east from the installation. The nearest villages are Bygrave, 1.2 km to the north west and Wallington 2.3km to the south east.

The proposed facility is designed to process up to 54,000 tonnes per annum of food wastes, which will include source segregated food waste from households and commercial and industrial food waste, including Category 3 Animal By-Product material. The facility will comprise the following operations:

- Anaerobic digestion (AD) plant and
- Combined heat and power (CHP) plant (including an emergency flare).

The waste delivered to site will be discharged within an enclosed reception building. The waste reception building is equipped with an extraction ventilation system which will extract air to an odour abatement system which consists of activated carbon filters that will treat odour emissions prior to discharge to atmosphere. The solid waste undergoes a series of pre-treatment operations (which includes depackaging, shredding and maceration) to reduce the waste to the appropriate particle size. The resulting feedstock is then transferred to digesting tanks for further processing.

Biogas drawn off from the digesters will be used to generate electricity and heat using two CHP engines with an aggregated thermal input of 6.4 MW. The heat produced from the engines will be recovered and integrated in the process heating requirements including pasteurisation of waste as required by the Animal By-Products Regulations. The by-product from the process (digestate) will undergo a final screening to remove any foreign objects such as plastic before being transferred to the digestate storage tanks, where it will be despatched off-site as bio-fertiliser. The spreading of digestate on land is not included or authorised by this Environmental Permit.

Main releases to the environment are to air and land. Uncontaminated site surface water is directed to a surface water attenuation area after passing through an interceptor. Excess uncontaminated site surface water is discharged through soakaway points as shown on drainage plan in the application. Process effluent from the anaerobic digestion operation is re-circulated within the AD process.

There are no European habitat sites (Special Protection Areas, Special Areas of Conservation and Ramsar sites) within 10 km from the Installation. There are ten local wildlife sites and two Ancient Woodlands within 2 km of the installation. Assessment by the Environment Agency shows that emissions from activities undertaken at the Installation are unlikely to have a significant impact on the habitat sites.

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

Status log of the permit		
Description	Date	Comments
Application EPR/VP3932EG/A001	Duly made 06/02/14	Application for an anaerobic digestion facility.
Additional information received	11/03/14	Clarification of information in relation to drainage, waste types, odour management plan, air quality modelling, BAT assessment.
Additional information received	13/03/14	Activated carbon and engine specifications.
Additional information received	20/03/14	Revised drainage plan and point source emissions plan; confirmation of thermal input of CHP engines, process monitoring frequencies and determinands, odour abatement emissions outlets.
Additional information received	10/04/14	Revised air quality modelling report.
Permit determined	29/05/14	Permit issued to Biogen (UK) Limited.

End of introductory note

Permit

The Environmental Permitting (England and Wales) Regulations 2010

Permit number
EPR/VP3932EG

The Environment Agency hereby authorises, under regulation 13 of the Environmental Permitting (England and Wales) Regulations 2010

Biogen (UK) Limited (“the operator”),
whose principal office is

Milton Parc
Milton Ernest
Bedfordshire
MK44 1YU

company registration number 05616520

to operate an installation at

Bygrave Lodge Anaerobic Digestion Plant
Bygrave Lodge Farm
Nr Baldock
Hertfordshire
SG7 6QX

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

Name	Date
Claire Roberts	29/05/2014

Authorised on behalf of the Environment Agency

Conditions

1 Management

1.1 General management

1.1.1 The operator shall manage and operate the activities:

- (a) in accordance with a written management system that identifies and minimises risks of pollution, including those arising from operations, maintenance, accidents, incidents, non-conformances, closure and those drawn to the attention of the operator as a result of complaints; and
- (b) using sufficient competent persons and resources.

1.1.2 Records demonstrating compliance with condition 1.1.1 shall be maintained.

1.1.3 Any person having duties that are or may be affected by the matters set out in this permit shall have convenient access to a copy of it kept at or near the place where those duties are carried out.

1.1.4 The operator shall comply with the requirements of an approved competence scheme.

1.2 Energy efficiency

1.2.1 The operator shall:

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

1.3 Efficient use of raw materials

1.3.1 The operator shall:

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

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

1.4.1 The operator shall take appropriate measures to ensure that:

- (a) the waste hierarchy referred to in Article 4 of the Waste Framework Directive is applied to the generation of waste by the activities; and
 - (b) any waste generated by the activities is treated in accordance with the waste hierarchy referred to in Article 4 of the Waste Framework Directive; and
 - (c) where disposal is necessary, this is undertaken in a manner which minimises its impact on the environment.
- 1.4.2 The operator shall review and record at least every four years whether changes to those measures should be made and take any further appropriate measures identified by a review.

2 Operations

2.1 Permitted activities

- 2.1.1 The operator is only authorised to carry out the activities specified in schedule 1 table S1.1 (the “activities”).

2.2 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 (a) 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.
- (b) 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 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.
- 2.3.2 Any raw materials or fuels listed in schedule 2 table S2.1 shall conform to the specifications set out in that table.
- 2.3.3 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.
- 2.3.4 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.

2.3.5 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.

2.4 Pre-operational conditions

2.4.1 The activities shall not be brought into operation until the measures specified in schedule 1 table S1.3 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.

3.3 Odour

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

3.4 Noise and vibration

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

3.5 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.

3.6 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) 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, hazard or annoyance from pests;
 - (b) implement the pests management 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.

4.3 Notifications

- 4.3.1 (a) In the event 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) in the event 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) in the event 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 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.
- 4.3.4 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.

4.3.5 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.

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

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 "without delay", 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 IIA and IIB operations	Limits of specified activity and waste types
A1	S6.8 A(1)(c) Disposing of or recycling of animal carcasses or animal waste, other than by rendering or by incineration falling within Section 5.1, at plant with a treatment capacity exceeding 10 tonnes per day of animal carcasses or animal wastes or both in aggregate.	Anaerobic digestion of animal and other waste followed by burning of biogas produced from the process. R3: Recycling/reclamation of organic substances which are not used as solvents. R13: Storage of waste pending any of the operations numbered R1 and R3 (excluding temporary storage, pending collection, on the site where it is produced).	Pre-treatment of permitted waste prior to digestion which includes screening, shredding and maceration. Anaerobic digestion of permitted waste including pasteurisation and chemical addition. Gas cleaning by biological or chemical scrubbing. Post-treatment of digestate including screening to remove plastic residues, centrifuge or pressing, addition of thickening agents (polymers) or drying. From the receipt of permitted waste through to its digestion and recovery of by-products from the installation. Waste types specified in Table S2.2.
Directly Associated Activity			
A2	Biogas combustion	Combustion of biogas in 2 combined heat and power (CHP) engines with an aggregated thermal input of 6.4 MWth. R1: Use principally as a fuel to generate energy.	CHP engines: from the receipt of biogas produced at the on-site anaerobic digestion process to combustion via CHP engine(s) with the release of combustion gases.
A3	Heat treatment	Pasteurisation of waste.	From the receipt of permitted waste through to its recovery.
A4	Emergency flare operation	Use of an auxiliary flare required only during periods of breakdown or maintenance of the CHP engine(s). D10: Incineration on land.	From the receipt of biogas produced on-site to incineration with the release of combustion gases.
A5	Raw material storage	Storage of lubrication oil, diesel, ferric chloride, nutrient additive and activated carbon.	From the receipt of raw materials to despatch for use within the facility.
A6	Gas storage	Storage of biogas produced from anaerobic digestion of permitted waste on site.	From the storage of biogas produced from anaerobic digestion process to despatch for combustion.

Table S1.1 Activities

Activity reference	Activity listed in Schedule 1 of the EP Regulations	Description of specified activity and WFD Annex IIA and IIB operations	Limits of specified activity and waste types
A7	Digestate storage	Storage of whole digestate in storage tanks.	From the storage of liquid digestate in storage tanks to despatch for use off-site
A8	Surface water collection and storage	Collection and storage of uncontaminated site surface rainwater.	From collection of on-site rainwater in the balancing pond and rainwater collection tank to its re-use within the facility or controlled discharge to soakaways.

Table S1.2 Operating techniques

Description	Parts	Date Received
Application EPR/VP3932EG/A001	Part B2: <ul style="list-style-type: none"> - Section 6b – B26b - Site Condition report - Section 6c – B26c – Non Technical Summary - Section 7 – B27 - Environmental Risk Assessment Part B3: <ul style="list-style-type: none"> - Section 3a – B43a – Technical Standards & Techniques for Pollution Control (BAT) - Section 3b – B43(a) Fugitive Emissions plan, B43b(b) Odour Management Plan, B43b(c) Noise Management Plan - Section 4a – B44a – Emissions monitoring - Section 4b – B44b - Point source emissions to air - Section 6 – B45 – Raw materials usage and energy efficiency 	19/12/13
Additional information	Confirmation on raw materials used.	03/02/14
	Clarification on CHP engines used; confirmation that there are no boilers to be used on site, clarification on VOCs emissions.	05/02/14
	VOCs emission rates.	06/02/14
Response to Schedule 5 Notice dated 18/02/14	Responses to questions regarding: <ul style="list-style-type: none"> - Technical standards used - Waste types - Drainage and secondary containment design - Site layout plan - Odour abatement - Best available techniques (BAT) used - Odour Management Plan - Site Condition report and baseline soil and groundwater reference data with supporting documents and drawings.	11/03/14
Additional information	Activated carbon and CHP engines specifications.	13/03/14

Table S1.2 Operating techniques

Description	Parts	Date Received
Additional information	Revised site drainage plan ref. CIVILS DRA001. Revised point source emissions to air plan. Confirmation of thermal input of CHP engines. Confirmation on process monitoring frequencies and determinands. Clarification on odour abatement emission outlet.	20/03/14
Additional information	Revised Air Quality modelling report.	10/04/14
Additional information	HAZOP study.	28/04/14

Table S1.3 Pre-operational measures

Reference	Pre-operational measures
POC 01	At least 4 weeks (or such other date as agreed in writing with the Environment Agency) prior to the commencement of installation activities, the operator shall submit a feedstock analysis procedure. The procedure shall take into account the appropriate measures for feedstock analysis specified in sections 2.1.1 of Sector Guidance Note IPPC S5.06 – <i>Guidance for the Treatment of Hazardous and Non Hazardous Waste</i> .
POC 02	<p>At least 4 weeks (or such other date as agreed in writing by the Environment Agency) prior to the commencement of installation activities, the operator shall ensure that a review of the design, method of construction and integrity of all bunds surrounding above-ground tanks is carried out by a qualified structural engineer. The review shall compare constructed bunds against the standards set out in Section 2.2.5 of the Sector Guidance Note IPPC S5.06 – <i>Guidance for the Recovery and Disposal of Hazardous and Non Hazardous Waste</i> and CIRIA Report 164 – <i>Design of Containment Systems for the Prevention of Water Pollution from Industrial Incidents</i>.</p> <p>The review shall include:</p> <ul style="list-style-type: none"> • the physical condition of the bunds, • their suitability for providing containment when subjected to the dynamic and static loads caused by catastrophic tank failure, • any work required to ensure compliance with the standards set out in CIRIA Report 164 for reinforced concrete or masonry bunds, and • a preventative maintenance and inspection regime. <p>A written report of the review shall be submitted to the Environment Agency detailing the reviews findings and recommendations. Remedial action shall be taken to ensure all bunds meet the standards set out in the above documents and implement the maintenance and inspection regime. No site operations shall commence or waste accepted at the facility unless the Environment Agency has given prior written permission under this condition.</p>

Schedule 2 - Waste types, raw materials and fuels

Table S2.1 Raw materials and fuels

Raw materials and fuel description	Specification
Chemicals	Operational requirement only
Fuel oil	Operational requirement only

Table S2.2 Permitted waste types and quantities for storage prior to separation and subsequent treatment by anaerobic digestion, dewatering and final recovery of by-products

Maximum quantity	Annual throughput shall not exceed 54,000 tonnes.
Waste Code	Description
02	Wastes from Agriculture, Horticulture, Aquaculture, Forestry, Hunting and Fishing, Food Preparation and Processing
02 01	wastes from agriculture, horticulture, aquaculture, forestry, hunting and fishing
02 01 01	sludges from washing and cleaning – food processing waste, food washing waste
02 01 02	animal-tissue waste – including blood, animal flesh, fish processing waste, fish carcasses, poultry waste
02 01 03	plant-tissue waste – including husks, cereal dust, waste animal feeds, off-cuts from vegetable, fruit and other vegetable waste
02 01 06	animal faeces, urine, manure including spoiled straw)
02 01 07	wastes from forestry
02 01 99	wastes not otherwise specified – residues from commercial mushroom cultivation
02 02	wastes from the preparation and processing of meat, fish and other foods of animal origin
02 02 01	sludges from washing and cleaning – process water, food washing waste
02 02 02	animal-tissue waste – including blood, animal flesh, fish processing waste, fish carcasses, poultry waste
02 02 03	materials unsuitable for consumption or processing
02 02 99	wastes not otherwise specified – sludges from gelatine production, animal gut contents
02 03	wastes from fruit, vegetables, cereals, edible oils, cocoa, coffee, tea and tobacco preparation and processing; conserve production; yeast and yeast extract production, molasses preparation and fermentation
02 03 01	sludges from washing, cleaning, peeling, centrifuging and separation
02 03 02	sludges from washing, cleaning peeling, centrifuging and separation– Coffee, mushroom compost, food processing waste, food washing waste, tobacco
02 03 04	materials unsuitable for consumption or processing
02 03 05	sludges from on-site effluent treatment
02 03 99	wastes not otherwise specified – sludge from production of edible fats and oils to include seasoning residues, molasses residues, residues from production of potato, corn or rice starch
02 04	wastes from sugar processing
02 04 03	sludges from on-site effluent treatment
02 04 99	wastes not otherwise specified – other biodegradable wastes

Table S2.2 Permitted waste types and quantities for storage prior to separation and subsequent treatment by anaerobic digestion, dewatering and final recovery of by-products

Maximum quantity Annual throughput shall not exceed 54,000 tonnes.

Waste Code	Description
02 05	wastes from the dairy products industry
02 05 01	materials unsuitable for consumption or processing including solid and liquid dairy products, milk, food processing wastes, yoghurt, whey
02 05 02	sludges from on-site effluent treatment
02 06	wastes from the baking and confectionery industry
02 06 01	materials unsuitable for consumption or processing including condemned food, food processing wastes, biscuits, chocolate, yeast, bread, bakery wastes
02 06 03	sludges from on-site effluent treatment
02 07	wastes from the production of alcoholic and non-alcoholic beverages (except coffee, tea and cocoa)
02 07 01	wastes from washing, cleaning and mechanical reduction of raw materials including brewing waste, food processing waste, fermentation waste
02 07 02	wastes from spirits distillation including spent grains, fruit and potato pulp, sludge from distilleries
02 07 04	materials unsuitable for consumption or processing including brewing waste, food processing waste, fermentation waste, beer, alcoholic drinks, fruit juice
02 07 99	wastes not otherwise specified – spent grains, hops and whisky filter sheets/cloths, yeast, yeast-like residues, sludge from production process
03	Wastes from Wood Processing and the Production of Panels and Furniture, Pulp, Paper and Cardboard
03 03	wastes from pulp, paper and cardboard production and processing
03 03 02	green liquor sludge (from recovery of cooking oil)
03 03 08	wastes from sorting of paper and cardboard destined for recycling – not allowed if non biodegradable coating or preserving substance present
03 03 10	fibre rejects and sludges i.e. paper pulp (de-inked only), paper fibre
04	Wastes from the Leather, Fur and Textile Industries
04 01	wastes from the leather and fur industry
04 01 01	fleshings and lime split wastes
04 01 05	tanning liquor free of chromium
04 01 07	sludges not containing chromium
04 02	waste from the textile industry
04 02 10	organic matter from natural products (for example grease, wax)
15	Waste Packaging; Absorbents, Wiping Cloths, Filter Materials and Protective Clothing not otherwise specified
15 01	packaging (including separately collected municipal packaging waste)
15 01 01	paper and cardboard packaging – not allowed if any non biodegradable coating or preserving substance present. Excludes laminates such as Tetrapaks.
15 01 02	biodegradable plastic packaging – must be independently certified to BS EN 13432
15 01 03	untreated wooden packaging – not allowed if any non biodegradable coating or preserving substance present
15 01 05	composite packaging – must conform to BS EN 13432 and not allowed if any non biodegradable coating or preserving substance present

Table S2.2 Permitted waste types and quantities for storage prior to separation and subsequent treatment by anaerobic digestion, dewatering and final recovery of by-products

Maximum quantity Annual throughput shall not exceed 54,000 tonnes.

Waste Code	Description
19	Wastes from Waste Management Facilities, Off-site Waste Water Treatment Plants and the Preparation of Water Intended for Human Consumption and Water for Industrial Use
19 02	wastes from physico/chemical treatments of waste (including dechromatation, decyanidation, neutralisation)
19 02 10	combustible wastes other than those mentioned in 19 02 08 and 19 02 09 - glycerol
19 05	wastes from aerobic treatment of solid wastes
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 source-segregated biodegradable waste
19 05 99	wastes not otherwise specified – composting liquors
19 06	wastes from anaerobic treatment of waste
19 06 03	liquor from anaerobic treatment of municipal waste
19 06 04	digestate from anaerobic treatment of municipal waste
19 06 05	liquor from anaerobic treatment of animal and vegetable waste
19 06 06	digestate from anaerobic treatment of animal and vegetable waste
19 08	wastes from waste water treatment plants not otherwise specified
19 08 09	grease and oil mixture from oil/water separation containing only edible oils and fats
19 08 12	sludges from biological treatment of industrial waste water other than those mentioned in 19 08 11
20	Municipal Wastes (Household waste and similar commercial, industrial and institutional wastes) including separately collected fractions
20 01	separately collected fractions (except 15 01)
20 01 01	paper and cardboard – not allowed if any non biodegradable coating or preserving substance present. Excludes laminates such as Tetrapaks.
20 01 08	biodegradable kitchen and canteen waste
20 01 25	edible oil and fat
20 02	garden and park wastes (including cemetery waste)
20 02 01	biodegradable waste
20 03	other municipal wastes
20 03 01	mixed municipal waste – separately collected biowastes
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 (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
A1 as shown on site plan in Schedule 7	CHP engine 1 [Note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Hourly average	Annual	BS EN 14792
		Sulphur dioxide	350 mg/m ³			BS EN 14791
		Carbon monoxide	1400 mg/m ³			BS EN 15058
		Total VOCs	1000 mg/m ³			BS EN 12619:2013
A2 as shown on site plan in Schedule 7	CHP engine 2 [Note 1]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	500 mg/m ³	Hourly average	Annual	BS EN 14792
		Sulphur dioxide	350 mg/m ³			BS EN 14791
		Carbon monoxide	1400 mg/m ³			BS EN 15058
		Total VOCs	1000 mg/m ³			BS EN 12619:2013
A3 as shown on site plan in Schedule 7	Emergency flare stack [Note 2]	Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	150 mg/m ³	Hourly average	Monitoring to be undertaken 12 months after commissioning. Following commissioning, monitoring to be undertaken in the event that the flare has been operational for more than 10 per cent of a year (876 hours)	BS EN 14792
		Carbon monoxide	50 mg/m ³			BS EN 15058
		Total VOCs	10 mg/m ³			BS EN 12619:2013
A4 as shown on site plan in schedule 7	Odour abatement stack	No parameter set	No limit set	--	--	--
PRV1, PRV2, PRV3, PRV4, PRV5 as shown on	Digester and storage tank pressure relief	No parameter set	No limit set	--	Record of operating hours	--

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Emission point ref. & location	Source	Parameter	Limit (including unit)	Reference period	Monitoring frequency	Monitoring standard or method
site plan in Schedule 7	vents/valves					

Note 1 - These limits are based on normal operating conditions and load. Temperature: 0°C (273 K), pressure: 101.3 kPa and oxygen: 5 per cent (dry gas). The measurement uncertainty specified in LFTGN08 v2 2010 shall apply.

Note 2 - These limits are based on normal operating conditions and load. Temperature: 0°C (273K), pressure: 101.3 KPa and oxygen: 3 per cent (dry gas). The measurement uncertainty specified in LFTGN05 v2 2010 shall apply.

Table S3.2 Point Source emissions to water (other than sewer) and land – emission limits and monitoring requirements

Emission point ref. & location	Parameter	Source	Limit (incl. unit)	Reference Period	Monitoring frequency	Monitoring standard or method
Soak 1, Soak 2 and Soak 3 emissions to soakaway as specified on the drainage plan ref. CIVILS DRA001 in the application	Oils & grease, suspended solids Ammonia	Uncontaminated site surface water from the balancing pond located north of the site	No visible trace -	--	--	--
Soak 4 emissions to soakaway as specified on the drainage plan ref. CIVILS DRA001 in the application	Oils & grease, suspended solids	Uncontaminated site surface water from the balancing pond located west of the site	No visible trace	--	--	--

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
Biogas from Digester tanks	Flow	Continuous	In accordance with EU Weights and Measures Regulations	--
Biogas from Digester tanks	Methane Hydrogen sulphide	Continuous	--	Gas monitors calibrated every 6 months to manufacturers requirements.
Gas storage tank	Pressure	Continuous	--	Pressure monitoring as described in the application EPR/VP3932EG/A001.

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
Waste reception building; Digester and Storage tanks	Odour	Daily	Olfactory monitoring	Odour detection at the site boundary.
Odour abatement system	Parameters as described in the application EPR/VP3932EG/A001	As proposed in application	--	Odour abatement system shall be regularly checked and maintained to ensure appropriate control in accordance with manufacturer's recommendations.
Digester and Storage tanks	Integrity checks	Weekly	Visual assessment	--

Schedule 4 - Reporting

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

Table S4.1 Reporting of monitoring data

Parameter	Emission or monitoring point/reference	Reporting period	Period begins
Emissions to air Parameters as required by condition 3.5.1.	A1, A2, A3	Every 12 months	1 January

Table S4.2: Annual production/treatment

Parameter	Units
Electricity generated	MWh
Whole digestate	tonnes

Table S4.3 Performance parameters

Parameter	Frequency of assessment	Units
CHP gas engine usage	Annually	hours
CHP engine efficiency	Annually	%
Biogas usage	Annually	tonnes or m ³
Emergency flare operation	Annually	hours
Electricity usage	Annually	MWh
Electricity exported	Annually	MWh
Water usage	Annually	tonnes or m ³
Raw material usage	Annually	tonnes or m ³

Table S4.4 Reporting forms

Media/parameter	Reporting format	Date of form
Air	Form air 1 or other form as agreed in writing by the Environment Agency	29/05/14
Energy usage	Form Energy usage 1 or other form as agreed in writing by the Environment Agency	29/05/14
Water usage	Form water usage 1 or other form as agreed in writing by the Environment Agency	29/05/14
Other performance indicators	Form performance 1 or other form as agreed in writing by the Environment Agency	29/05/14
Waste returns	Form WMS1	29/05/14

Schedule 5 - Notification

These pages outline the information that the operator must provide.

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

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

Part A

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

(a) Notification requirements for any malfunction, breakdown or failure of equipment or techniques, accident, or emission of a substance not controlled by an emission limit which has caused, is causing or may cause significant pollution

To be notified within 24 hours of detection	
Date and time of the event	
Reference or description of the location of the event	
Description of where any release into the environment took place	
Substances(s) potentially released	
Best estimate of the quantity or rate of release of substances	
Measures taken, or intended to be taken, to stop any emission	
Description of the failure or accident.	

(b) Notification requirements for the breach of a limit
--

To be notified within 24 hours of detection unless otherwise specified below	
Emission point reference/ source	
Parameter(s)	
Limit	
Measured value and uncertainty	
Date and time of monitoring	
Measures taken, or intended to be taken, to stop the emission	

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

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

Part B - to be submitted as soon as practicable

Any more accurate information on the matters for notification under Part A.	
Measures taken, or intended to be taken, to prevent a recurrence of the incident	
Measures taken, or intended to be taken, to rectify, limit or prevent any pollution of the environment which has been or may be caused by the emission	
The dates of any unauthorised emissions from the facility in the preceding 24 months.	

Name*	
Post	
Signature	
Date	

* authorised to sign on behalf of the operator

Schedule 6 - Interpretation

accident means an accident that may result in pollution.

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 anaerobe 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.

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

D means a disposal operation provided for in Annex I to Directive 2008/98/EC of the European Parliament and of the Council on waste.

digestate means material resulting from an anaerobic digestion process

emissions to land includes emissions to groundwater.

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.

EP Regulations means The Environmental Permitting (England and Wales) Regulations SI 2010 No.675 and words and expressions used in this permit which are also used in the Regulations have the same meanings as in those Regulations.

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.

groundwater protection zones 1 and 2 have the meaning given in the document titled "Groundwater Protection: Policy and Practice" published by the Environment Agency in 2006.

hazardous property has the meaning given in Schedule 3 of the Hazardous Waste (England and Wales) Regulations 2005 No.894 and the Hazardous Waste (Wales) Regulations 2005 No. 1806 (W.138).

Industrial Emissions Directive means DIRECTIVE 2010/75/EU OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 24 November 2010 on industrial emissions.

MCERTS means the Environment Agency's Monitoring Certification Scheme.

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

R means a recovery operation provided for in Annex II to Directive 2008/98/EC of the European Parliament and of the Council on waste.

“*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.

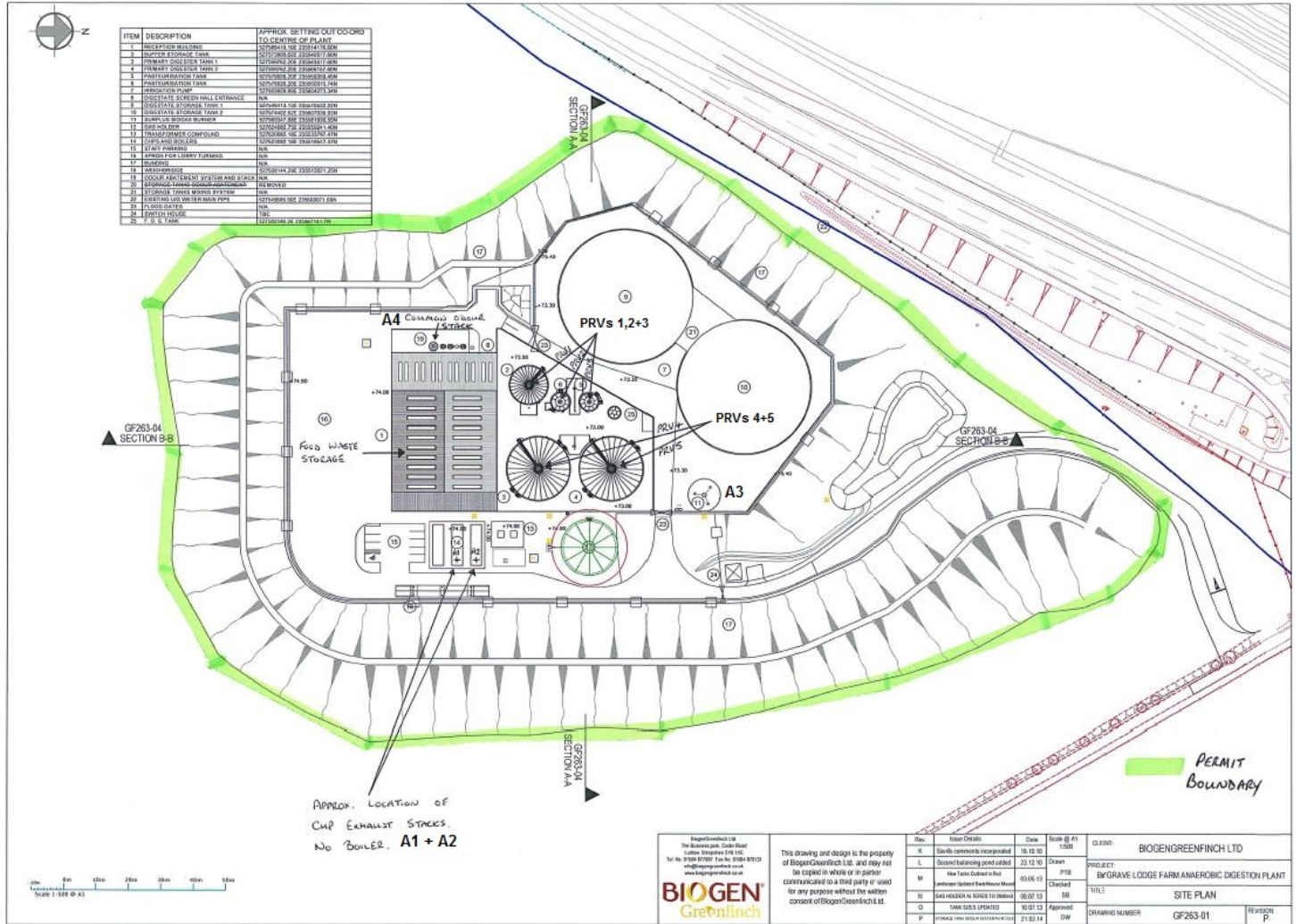
“*year*” means calendar year ending 31 December.

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

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

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

Schedule 7 - Site plan



END OF PERMIT

Permit Number: EPR/VP3932EG

Operator: Biogen (UK) Limited

Facility: Bygrave Lodge AD Plant

Form Number: Air1 / 29/05/14

Reporting of emissions to air for the period from DD/MM/YYYY to DD/MM/YYYY

Emission Point	Substance / Parameter	Emission Limit Value	Reference Period	Result [1]	Test Method [2]	Sample Date and Times [3]	Uncertainty [4]
A1	Oxides of Nitrogen (NO and NO2 expressed as NO2)	500 mg/m ³					
	Sulphur dioxide	350 mg/m ³					
	Carbon monoxide	1400 mg/m ³					
	Total VOCs	1000 mg/m ³					
A2	Oxides of Nitrogen (NO and NO2 expressed as NO2)	500 mg/m ³					
	Sulphur dioxide	350 mg/m ³					
	Carbon monoxide	1400 mg/m ³					
	Total VOCs	1000 mg/m ³					
A3	Oxides of Nitrogen (NO and NO2 expressed as NO2)	150 mg/m ³					
	Carbon monoxide	50 mg/m ³					
	Total VOCs	10 mg/m ³					

[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
(Authorised to sign as representative of Operator)

Date.....

Permit Number: EPR/VP3932EG

Operator: Biogen (UK) Limited

Facility: Bygrave Lodge AD Plant

Form Number: Performance1 / 29/05/14

Reporting of other performance indicators for the period DD/MM/YYYY to DD/MM/YYYY

Parameter	Units
Total raw material used	tonnes
CHP gas engine usage	hours
CHP engine efficiency	%
Flare operation	hours
Electricity exported	MWh
Biogas usage	tonnes or m ³

Operator's comments :

Signed
(Authorised to sign as representative of Operator)

Date.....

Permit Number: EPR/VP3932EG

Operator: Biogen (UK) Limited

Facility: Bygrave Lodge AD Plant

Form Number: Energy1 / 29/05/14

Reporting of Energy Usage for the year YYYY

Energy Source	Energy Usage		Specific Usage (MWh/unit output)
	Quantity	Primary Energy (MWh)	
Electricity *	MWh		
Natural Gas	MWh		
Gas Oil	tonnes		
Recovered Fuel Oil	tonnes		
TOTAL	-		

* Conversion factor for delivered electricity to primary energy = 2.4

Operator's comments :

Signed
(authorised to sign as representative of Operator)

Date.....

Permit Number: EPR/VP3932EG

Operator: Biogen (UK) Limited

Facility: Bygrave Lodge AD Plant

Form Number: WaterUsage1 / 29/05/14

Reporting of Water Usage for the year YYYY

Water Source	Usage (m ³ /year)	Specific Usage (m ³ /unit output)
Mains water		
Site borehole		
River abstraction		
TOTAL WATER USAGE		

Operator's comments :

Signed
(authorised to sign as representative of Operator)

Date.....