GP Biotec Ltd

Great Porthamel, Talgarth,

LD3 0DL

Management System Summary

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Approved by:	Paul Jones
Reviewed by:	Lucy Owen
Review Date:	30/06/2026

1.0 Introduction

This document has been prepared by GP Biotec Ltd to provide supporting evidence required by Natural Resources Wales's Application Forms Part C2 and C3, in making an application to make a normal variation to their consolidated bespoke permit, EPR/AB3233DW. It factors in measures in place to address risks from the proposed change as well as any impact of the change on operations.(See Non-Technical Summary)

GP Biotec are proposing a permit variation for the current permit EPR/AB3233DW/V008 for the following:

- To consolidate their Standard Rule permit (EPR/BB3099CG)and Installations permit(EPR/AB3233DW/V008)permit;
- Include additional areas within the permit boundary, namely the SR area and the area comprising the existing digestate lagoon;
- The addition of a CHP engine;
- The addition of two liquid waste pre-storage tanks; and
- The addition of a new waste reception hall.

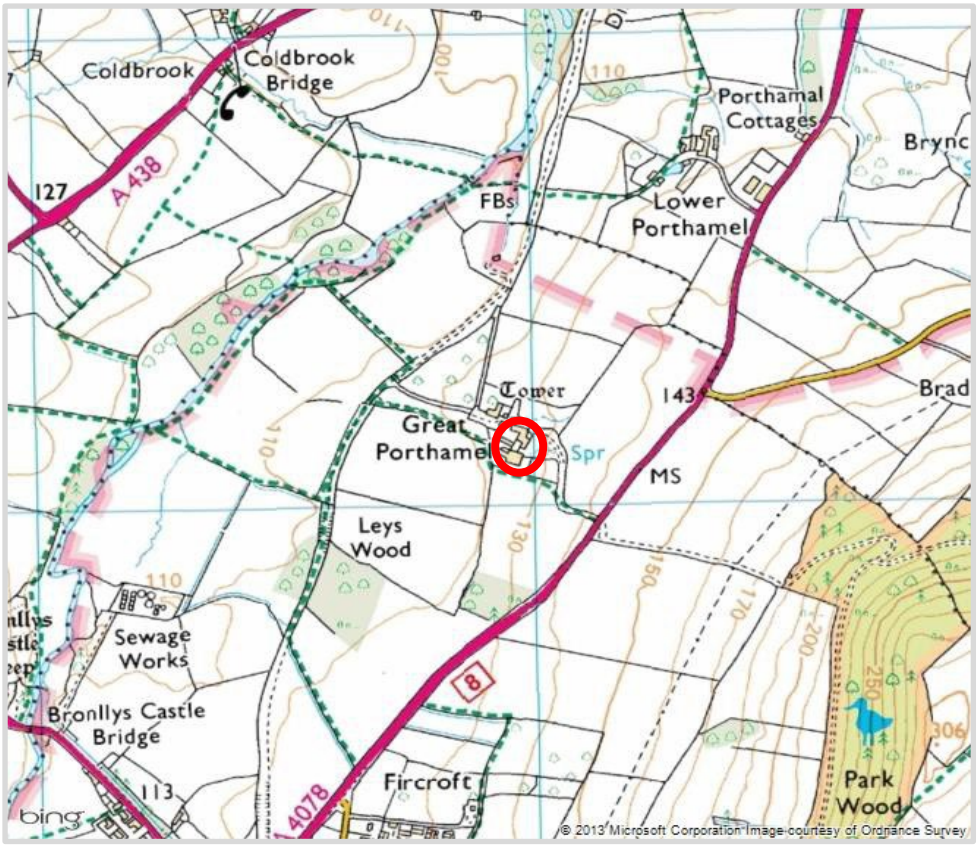
1.1 Company Details and Location

GP Biotec Ltd, Great Porthamel Farm, Talgarth, Powys, LD3 0DL

1.2 Site Location

Grid Reference: 316017, 235022

1.1 Location Map



1.3 GP Biotec Overview

GP Biotec operates under **Consolidated bespoke environmental permit** (Permit Number: EPR/AB3233DW) issued by Natural Resources Wales (NRW) under The Environmental Permitting (England and Wales) Regulations 2010; the following processes are permitted

- ABP Reception area- containing 2 x 60m3 ABP waste storage tanks and two new tanks with a total capacity of 210m^3 (90m^3 and 120 m^3) with associated carbon filtration units and Blood Tank Chilling Unit
- A sealed main waste processing building containing 2 CHP engine plant capable of electrical export up to 1.2MWe
- 2 x CHP Engine plant capable of electrical export up to 1.2MWe
- Feedstock blending systems and associated pumps / pipelines;
- Batch pasteurisation tanks;
- Bunded primary digestion tanks (1 x 2714m3 tank currently installed);
- Bunded secondary digestion tank (1 x 3695m3 tank currently installed);
- Digestate storage tanks
- Gas treatment plant; and
- Emergency flare.

GP Biotec aim to achieve and maintain the highest level of service provision and product quality. The company complies with all applicable statutory laws and regulations, and holds the following approval and certifications (all of which are held in the Site Office):

- **Animal and Plant Health Agency (APHA) approval** 52/083/8004 ABP/BIO (24th March 2014)[1];
- **Biofertilizer Certification Scheme** certified (the digestate output from the plant is certified to PAS 110:2014 and the Quality Protocol for whole, solid fibre and liquid anaerobic digestate fractions).
- **Full Planning Permission** (Appeal Ref: APP/P9502/A/09/2106895)

The Site's Environmental Management System (EMS) conforms to the standards of ISO14001:2015 and full certification to this standard has been achieved. The documents listed below form part of the EMS documentation; they are:

- Site Management Plan;
- Standard Operating Procedures;
- Odour Management Plan;
- Accident Management Plan

The Site is currently permitted to treat 75,000 tonnes of non-hazardous waste per annum, the waste includes:

Type	Waste Code & Classification	EWC
Gut content	Category 2 ABP	02 02 02
Daf Slurry	Category 3 ABP	02 02 04
Blood	Category 3 ABP	02 02 02
Potato Daf	-	02 03 05
Vegetable Peelings	-	02 03 04
Undercroft	Category 2 ABP	02 01 06
Whey	Category 3 ABP	02 02 01
ABP Wastewater		02 02 04

[1] Approval of biogas plant is by the Secretary of State/Welsh Ministers in accordance with Regulation 14 of The Animal By Products (Enforcement) (England) Regulations 2013, The Animal By-Products (Enforcement) (No.2) (Wales) Regulations 2011 and Articles 24 and 44 of Regulation (EC) No. 1069/2009. Approval was gain on 24/03/2014

2.0 Overview of the Site Working Plan

2.1 Technical Competence & Responsibilities

Paul Jones (Site Manager) is defined as the technically competent person for the site, he holds the WAMITAB Operator Competence Certificate for Anaerobic digestion facility including use of the resultant biogas (4MBTAD6) (Awarded 08/04/2014), he also holds the Continuing Competency Certificate (Renewed every two years).

Lucy Owen also holds a Level 4 WAMITAB Operator Competence Certification for Anaerobic Digestion (Awarded 14/08/2019) and also holds the Continuing Competency Certificate renewed every two years.

2.2 Environmental Setting

2.2.1 Surface Water Features

There are no surface water features located on site.

The nearest surface watercourse is the Afon Llynfi, located approximately 400m north west of the Site at its closest point.

2.2.2 Sensitive Environmental Receptors

The habitat receptor designations and locations relevant to the Site are shown in the table below:

Receptor	Habitat Designation	Approx. Location (Relative to Site)
Afon/Llynfi/River Wye	SSSI/SAC	514m North West
Pyll-y-wrach	SSSI	2km South

The Site is not considered likely to have any significant effects on the designated sites listed above due to the limited nature of emissions from the site.

2.3 Site Infrastructure

2.3.1 Layout and Building Design

The Master Site Plan illustrates the different areas of the Site, the area outlined in **red** is the permitted Site, but all the affiliated buildings, equipment and storage are featured on the plan to give an overview of the farm as well as the Site so an overall impression of the set up can be gained.

All floor spaces within buildings on the permitted Site are constructed of a sealed concrete hardstanding comprising a 250mm reinforced concrete layer constructed in accordance with

BS5328; The building design is also compliant with DEFRA's requirements to prevent access to the material from birds and rodents.

All external components of the plant are located on a sealed / impermeable concrete hardstanding.

The Site comprises of the following infrastructure, which is either maintained externally under a maintenance contract or maintained in-house and forms part of the Site maintenance checks;

- Weighbridge – at the entrance to the Site, all waste entering the Site is weighed and the information about the load (including the associated Waste Transfer Note, supplier details, waste code, driver etc) is entered into the weighbridge data computer system forming the Sites waste tracking system;

- ABP Waste Reception - or 'dirty' area is where all ABP wastes are delivered to on entering the Site, all solid loads are tipped into the solid waste feeder and all liquid wastes are unloaded into one of the four waste storage tanks (one of the tanks is used solely for the storage of abattoir blood). An odour control system which comprises of a carbon filter and chiller keep the area odour free.

- Non-ABP Waste Reception - can be found to the lower western portion of the permitted Site and is where all non-ABP and farm derived feedstocks are 'fed' into the primary digester.

- Digesters - An overview of the design/structure of the four digester tanks are given in the table below.

2.1 Digester Overview

	Digester 1	Digester 2	Digester 3	Digester 4
Function	Primary digestion, majority of biogas produced and collected	Secondary digestion, remaining biogas collected	Primary digestion, majority of biogas produced and collected	Primary digestion, majority of biogas produced and collected
Volume	2714m^3	3500m^3	2714m^3	2714m^3
Construction	Concrete tank	Concrete tank	Concrete tank	Concrete tank
Bunded	110%	110%	110%	110%
Mixing system	2x Paddle mixers (M301 & M302), 1x propeller mixer (M303)	1x Paddle Mixer (M304), 2x Propeller mixers (M305 & M306)	2x Paddle mixers (M301 & M302), 1x propeller mixer (M303)	2x Paddle mixers (M301 & M302), 1x propeller mixer (M303)
Gas Storage	Double membrane roof	Double membrane roof	Double membrane roof	Double membrane roof
Safety Features	Leak detection system, over/under pressure valve, foam detect system to be retro fitted (Autumn 2019)	Leak detection system, over/under pressure valve	Leak detection system, over/under pressure valve, foam detection system	Leak detection system, over/under pressure valve, foam detection system
System Control Features	Temperature sensors, gas pressure sensors, level sensors	Temperature sensors, gas pressure sensors, level sensors	Temperature sensors, gas pressure sensors, level sensors	Temperature sensors, gas pressure sensors, level sensors

The digester tanks are situated within a reinforced concrete bund constructed in accordance with BS5328. The bund is sealed and impermeable and can contain 110% of the volume of the largest digester.

- Reception Building – houses the following; a maintenance office, a laboratory for FOS/TAC testing, sampling etc; plant control room; high voltage switch gear and transformer, heating manifold, pasteuriser shed which houses 3x 100m^3 stainless steel pasteuriser tanks.

- CHP Engines - The Site has two 499kW combined heat and power (CHP) engines, both of which are housed in converted shipping containers. CHP1 is an MWM engine and is situated under the roof of the Reception Building to the left of the ABP area unloading

bay. CHP2 is an MAN engine and is situated to the eastern edge of the permitted area – see Site Plan. Both shipping containers are situated on a sealed, impermeable concrete bund. Each engine is fitted with a carbon filter to remove H_2S from the biogas before being fed to the engines.

The site plans to add an additional CHP (No.3) to the site to allow for biogas consumption in the event that the Gas upgrading unit (Biomethane) is offline or having scheduled down time to reduce the need for fluctuating feedrates, with the addition of a third engine the site could continue to run stable and efficiently. The CHP3 is an MAN engine situated to the eastern edge of the permitted area – see Site plan, within a sound acoustic container. CHP3 is also fitted with a carbon filter to remove H_2S from the biogas before being fed to the engine.

- Separator Building & Digestate Storage - Although the separator building and digestate storage doesn't fall within the curtilage of the permitted Site, it is an integral part of infrastructure to the running of the Site and therefore must be detailed in this document. The overall floorspace of the building is 405m^2 and it houses a screw-press separator with a 1mm screen which separates the whole digestate (stored in a 1000m^3 glass coated steel tank (DS1) within the building) into liquor and fibre fractions. The liquor is pumped directly to the 4000m^3 storage lagoon, and the fibre is stored in the concrete bay (108m^2) of the building directly below the separator.

  The Site has a total of 9400m^3 of liquor storage available on the farm site (see Master Site Plan – see Supporting Documents), with a further 600m3 available on farmland managed by GP Services. The company also utilises a further 10,000m^3 of liquor storage in the form of tanks and lagoons on customers land in the local vicinity.

  The Site has a total of 6,885m^3 of digestate fibre storage capacity (Separator Building (585m^3) and Grain Shed (3,300m^3) and off-Site silage pit (3000m^3)

2.4 Site Drainage

All surface water collected from the ABP waste reception areas is collected and transferred into the digesters. All uncontaminated surface water collects in the sump(W1) and is released only upon completion of required monitoring; in accordance with permit requirements. In the summer months, water is reused in the anaerobic digestion process.

Along with a review of the daily site checklist to ensure that no spillages or leaks have occurred, visual checks, pH and ammonia tests are done prior to the release of water from W1.

2.5 Site Security

The Site is protected with a secure gate and perimeter fence, the gate is locked outside of working hours. The Site is also equipped with a CCTV security system (equipped with pan, tilt and zoom

capabilities) and recording facilities (up to four weeks) which can be accessed in the Site Office, the canteen office and also on the Site Managers' phones 24 hours a day (all cameras are marked on the Health & Safety Site Plan).

All buildings are either fitted with keypad operated code locks or key locks.

Site security forms part of the Daily Checks carried out on Site. Any defects or damage shall be made secure by temporary repair by the end of the working day and a permanent repair effected within seven working days and noted in the Integrated Maintenance Record.

2.6 Site Infrastructure Monitoring

All Site infrastructure forms part of the daily, weekly, monthly, quarterly, and annual checklists – these checklists were developed based on advice from the plant technology provider, manufacturers recommended inspections and experience gained through running the plant.

3.0 Biofertilizer Certification Scheme (BCS)

The Biofertilizer Certification Scheme (BCS) provides assurance to consumers, farmers, food producers and retailers that digestate produced from anaerobic digestion is safe for human, animal, and plant health. Biofertilizer is the name adopted for the quality digestate that meets the BCS specification.

A Quality Management System (QMS) is in place in order to attain certification for the separated digestate liquor and fibre fractions (details of which can be found in the Site Office). The QMS consists of a Quality Policy, a management plan and incorporates the Site HACCP, in order that the Site is compliant with the REAL's Biofertilizer Certification Scheme Rules Version 6, Anaerobic Digestion Quality Protocol 2014 and the PAS110:2014 Specification.

The Site Manager and Environmental Manager have established and implemented the QMS; annually a management review is carried out in-house, plus an internal audit carried out by an external consultant, followed by an audit by the Certification Body (Organic Farmers and Growers).

There is obviously crossover when it comes to record keeping for the QMS and the Site Working Plan, where there is crossover there is one record kept and it is signposted in the Document Control document for the QMS, rather than duplicating records.

The digestate has been certified since 2015.

4.0 Process Description

A Process Flow diagram can be found in Supporting Documents. This schematic provides a broad overview of the process flow through the facility. Further details of each stage are provided within each specific area of the process in the following sections of this document.

4.1 Feedstock Overview

- The Site is permitted to receive and process a maximum of **75,000 tonnes** of non-hazardous biodegradable wastes per annum[2];

- The Site has **approval from the Animal and Plant Health Agency** (APHA)[3] to process certain Category 2 animal by-products, as well as Category 3 animal by-products;

- No more than **30 tonnes per day of blood** can be accepted onto Site (this can be calculated as an annual throughput of no more than 7,800 tonnes in total and is inclusive of the 75,000 tonnes limit[4]);

- **All wastes** are transferred and delivered to the Site via GP Services, the Sites affiliated haulage company, thereby reducing the number of waste transfers and Duty of Care information to a minimum;

- All wastes received on Site **are part of long-term contracts** for bulk waste (i.e. no packaging), therefore the blend of feedstocks is consistent and adverse effects on the process are reduced;

All records relating to waste processing are kept for a minimum of **five years** after the waste has been treated.

4.2 Permissible Waste Types

Under the conditions of the Site Environmental Permit (EPR/AB3233DW) GP Biotec Ltd is only allowed to receive specific wastes listed in Schedule 2, Table S2.1 of the permit (see GP Biotec Waste Types in 'Supporting Documents').

Under the Site APHA Approval:

- The site is permitted to process all types of Category 3 ABP material
- Processed material (rendered) derived from category 3 animal by-products.
- The following Category 2 ABPs without processing:
  - manure

[2] Consolidated bespoke environmental permit (Permit Number: EPR/AB3233DW) issued by Natural Resources Wales (NRW) under The Environmental Permitting (England and Wales) Regulations 2010NRW - Table S2.1 Permitted waste types and quantities for anaerobic digestion
[3] Animal Health Accreditation dated 24/03/2014 – 52/083/8004 ABP/BIO

        - digestive tract and its content
        - dairy products or colostrum
        - eggs or egg products
    - Those Category 2 ABPs not mentioned above if they have been first been pressure rendered at an approved site.

4.3 Regularly Accepted Wastes

The wastes that are accepted on a regular basis and for which Supply Agreements are in place are listed in the Table 3.1 below, the regular farm derived feedstocks are also listed.

3.1 Waste Feedstocks

Waste Type	EWC Code	ABP Category
Gut content	020202	Category 2
Lairage/Undercroft	020299	-
Waste water(ABP)	020204	-
Blood	020202	Category 3
Fruit/Vegetable Peelings	020304	-
Potato DAF	020305	-
Dairy Products unsuitable for consumption (e.g. whey	020501	Category 3

4.4 Farm-derived Feedstocks

The Site uses the following farm derived feedstocks:

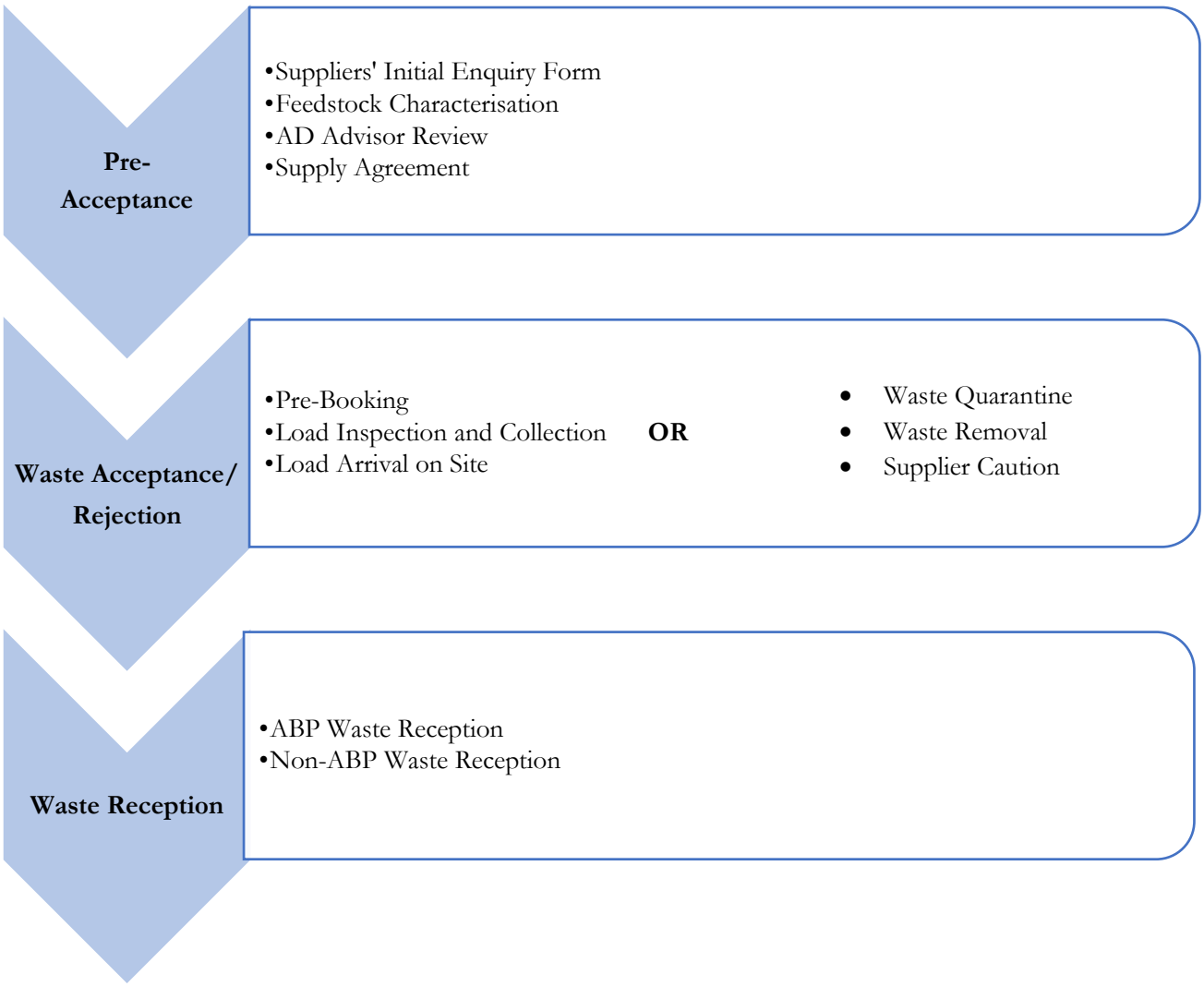
- Maize
- whole crop
- fodder beet
- hay
- straw

All farm derived feedstocks are 'fed' into the dedicated non-ABP reception area at the lower (western) portion of the site.

4.5 Waste Processing

In line with BAT and to ensure only suitable waste is processed, a system for **waste processing** is in place. The operation at the Site can be broadly broken down into the following processes – **Pre-Acceptance**, **Waste Acceptance**, **Waste Rejection** and **Waste Reception** and within each process there are specific procedures. The flow chart below illustrates this system:

4.1 Waste Processing Flow Diagram



4.6 Waste Storage

The Site provides adequate capacity for the safe storage of the amount of waste it is permitted to take annually. The infrastructure of the storage is checked daily and maintained to the highest standard. Odour control measures and health and safety precautions provide protection to the environment and employees health.

4.6.1 ABP Waste Storage

Solid Waste

- Solid ABP waste is stored in the ABP solid feeder, which has a capacity of 60m^3;
- The solid feeder is housed in an enclosed building (Hopper Shed) which is kept under negative air pressure;
- The Hopper Shed is fitted with a fast-acting roller shutter door to minimise the likelihood of fugitive emissions;
- Exhaust air from the Hopper Shed is treated via the carbon filter in the ABP Reception Area;
- The ABP feeding system is designed to provide adequate capacity to allow control of waste deliveries to minimise the amount of time that feedstock is stored before being processed.

Liquid Waste

- Liquid ABP waste is stored in one of four liquid waste tanks, 2x 60m^3, 1x 90 m^3 and 1x 120 m^3;
- All tanks are situated in a bunded pit with a capacity greater than 110% of all of the tanks;
- The blood storage tank is fitted with a cooling system which maintains the temperature of the blood at between 16-20^{o}C to eliminate the potential for odour emissions;
- Exhaust air from both the blood tank and the liquid waste storage tank is treated via the carbon filter in the ABP Reception area to minimise the likelihood of fugitive emissions.

4.6.2 Non- ABP Feedstock Storage

The farm derived feedstocks are stored in silage clamps on the Site's affiliated farm yard (Great Porthamel Farm).

There are two silage clamps both measuring 9000 m^3 each with effluent tanks of 23m^3 to collect and store the liquid effluent that is produced by the silage.

The legally required submission of evidence (known as a WQE3 form) of compliance with the construction standards as detailed in The Water Resources (Control of Pollution) (Silage, Slurry and Agricultural Fuel Oil) (Wales) Regulations 2010 have been submitted to Natural Resources Wales and accepted for both clamps.

4.7 Waste Treatment

Following initial storage there are various stages associated with the treatment of the waste. All waste will be treated as soon as possible and will be stored no longer than a maximum of 5 working days.

The process flow diagram gives an overview of the treatment process:

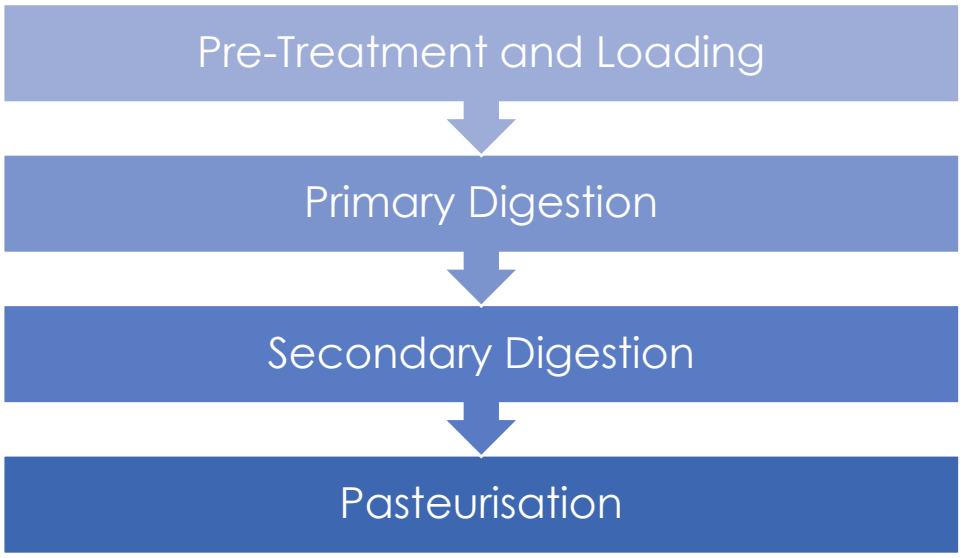


Fig 4.7.1

5.0 Digestate Separation and Storage

All pasteurised digestate is pumped from the pasteuriser tanks and collected and stored in a 1000m^3 glass coated steel tank (DS1).

All whole digestate is pumped from the storage tank to the screw-press separator, which has a 1mm screen, which produces liquor (80%) and fibre (20%) fractions.

The liquor is pumped directly to the storage lagoon and is deemed ready for use. From here the liquor is then hauled to the other liquor storage available on the farm site (DL1, DL2, DL3 and DL4) and/or to the various tanks and lagoons that are associated with the farm off-site (see Master Site Plan in 'Supporting Documents'). The fibre is stored in a covered building and is also deemed ready to use.

The digestate products produced are only used on farmland that is owned or managed by GP Biotec.

All digestate is certified by the Biofertilizer Certification Scheme.

6.0 Site Monitoring

A suitable monitoring system, both manual and instrumental, is essential to ensure stable digester operation (especially for thermophilic plants) and to minimise operational difficulties, such as foaming, which may lead to odour and aesthetic problems.

In compliance with BAT requirements, all the digesters are equipped with high-level temperature and gas pressure monitors, which are automatic and continuous and linked to a clear display in the control room (as well as accessible on the Site Managers mobile phone and all office laptops), together with an alarm system (this is both in the form a visual 'flashing' on the display screen, as well as text message alerts to the Site Manager in the case of a critical alert). The detailed requirements for process monitoring, alarms and interlocking are informed by the risk assessments carried out in the Sites HACCP.

Daily, weekly, monthly, quarterly, six monthly and annual checks are carried out, which encompass all biological and equipment maintenance monitoring.

6.1 Sampling and Testing

Sampling and testing is an integral part of running an anaerobic digester plant efficiently and effectively along with producing quality digestate. Table 6.1.1 below details the sample types taken on Site, the methods used to take the samples, the regulation or guidance associated with the sample and the frequency of the testing. Procedures are in place for sample failures.

Table 6.1.1

Sample Type	Sample Method	Related Legislation/BAT	Frequency
Feedstock Analysis	Representative sample taken from load.	Section 3.1.3 Feedstock Characterisation and sampling procedures - *How to comply with your environmental permit. Additional guidance for: Anaerobic Digestion (Reference LIT 8737, Report Version 1.0 and November).*	Annually
E.coli & *Salmonella*	APHA Guidance https://www.gov.uk/guidance/laboratory-testing-requirements-for-animal-by-products-abps	*Regulation EC 1069/2009 (hereafter the (EC) ABP Control Regulation)* and *Regulation EC 142/2011(hereafter the (EC) ABP Implementing Regulations)* *Animal By-Products (Enforcement) (Wales) Regulations 2014*	Monthly
FOS/TAC	Representative sample taken from digester sampling points.	Section 2.4.8 Monitoring & Control Considerations *How to comply with your environmental permit. Additional guidance for: Anaerobic Digestion (Reference LIT 8737, Report Version 1.0 and November).*	Weekly
Digestate Substrate Analysis (including trace elements,	Representative sample taken from digester sampling points and sent to laboratory for analysis.	Section 2.4.8 Monitoring & Control Considerations *How to comply with your environmental permit. Additional guidance for: Anaerobic Digestion (Reference LIT 8737, Report Version 1.0 and November).*	6 monthly
PAS110 Testing – Digestate Liquor	Sampling Guidance for Liquid Materials Sample taking and sample preparation Adapted for PAS 110 from Chapter I - Methodsbook Bundesgütemeinschaft Kompost	PAS 110:2014 Specification for whole digestate, separated liqor and separated fibre derived from the anaerobic digestion of source-segregated biodegradable materials	Every 6000m^3 produced or every 3 months – whichever is soonest

PAS110 Testing – Digestate Fibre	Sampling Guidance for Liquid Materials Sample taking and sample preparation Adapted for PAS 110 from Chapter I - Methodsbook Bundesgütemeinschaft Kompost	PAS 110:2014 Specification for whole digestate, separated liqor and separated fibre derived from the anaerobic digestion of source-segregated biodegradable materials	Every 6000m^3 produced or every 3 months – whichever is soonest
12mm Sample Test	Representative sample taken from biocut.	Result of risk assessment and advice from APHA vet.	Monthly

6.2 Pest Control

The site is fenced off and gated, the reception hopper is enclosed and lockable and the waste is digested in fully enclosed tanks.

In order to mitigate against the potential spread of contamination through migration of vermin, bait boxes shall be installed within the site building and the building exterior.

The vermin bait boxes will be checked at least every six weeks by the Pest Control Contractor (or more frequently as required). Any action taken i.e., increased topping up of bait boxes and corresponding comments will be logged in the Pest Contractor Record.

6.3 Odour and Accident Management

The site has an Odour management plan and an Accident Management Plan. These have been updated taking into consideration the potential risks from the proposed variation.