GP Biotec Ltd

Great Porthamel, Talgarth,

LD3 0DL

Non-Technical Summary

(Minor Technical Variation of

Permit EPR/AB3233DW)

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1.0 Introduction

This document has been prepared by GP Biotec Ltd to provide supporting evidence required by Natural Resources Wales' Application Forms Part C2 and C3, in making an application to make a minor technical variation to their consolidated bespoke permit, EPR/AB3233DW.

GP Biotec is making an application to make a minor technical variation to their existing consolidated bespoke permit EPR/AB3233DW:

- To increase the limit of permitted waste accepted by the Site from 55,000 tonnes to 75,000 tonnes per annum.

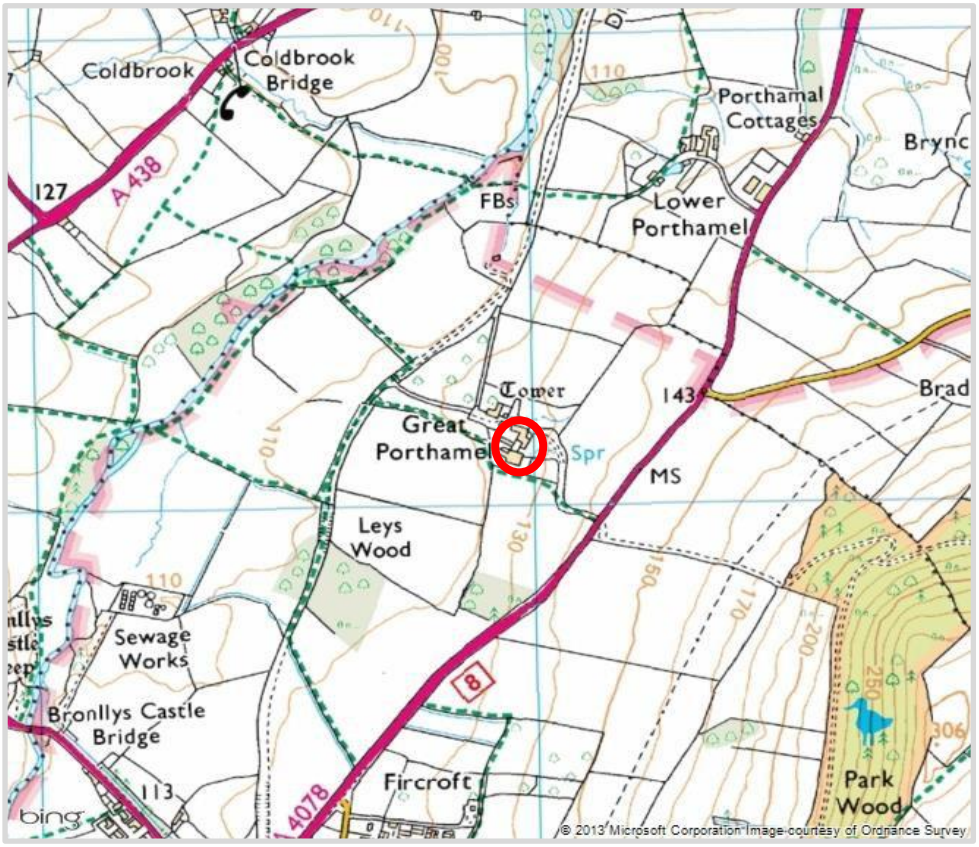
1.1 Company Details and Location

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 an on-farm **wet, mesophilic anaerobic digestion** (AD) plant, processing waste from a variety of sources, but predominantly a mixture of animal by-product (ABP) waste and non-ABP waste from abattoirs, as well as farm energy crops (grown by the Sites affiliated farm business) into **biogas** and **digestate**. The biogas is converted into **heat** and **electricity.** A proportion of the heat is used to heat the parts of the plant which require it and to heat Site offices and other buildings. All the electricity produced (minus the parasitic load to operate the plant) is metered into the National Grid and sold to a renewable energy supplier.

The digestate produced by the AD process is **pasteurised** and controlled by a Quality Policy and Quality Management System. The separated digestate liquor and fibre are both certified under the **Biofertiliser Certification Scheme** and therefore no longer considered a waste material, but **biofertilisers**.

The digestate fractions are spread onto farmland owned and/or managed by GP Biotecs affiliated company GP Services (a farm business and haulage company).

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 permits, approval and certifications (all of which are held in the Site Office):

- **Consolidated bespoke environmental permit** (Permit Number: EPR/AB3233DW) issued by Natural Resources Wales (NRW) under The Environmental Permitting (England and Wales) Regulations 2010;
- **Animal and Plant Health Agency (APHA) approval** 52/083/8004 ABP/BIO (24th March 2014)[1];
- **Biofertiliser 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)

[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

The Site is currently permitted to treat 55,000 tonnes of non-hazardous waste per annum, the wastes typically include:

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
Wastewater		02 02 04

All wastes are delivered and transferred to the site via GP Services, the sites own haulage company and farm business.

2.0 Proposed Minor Technical Variation

In addition to the two digester tanks that GP Biotec currently runs on Site (total capacity 6214m^3), the final two digesters are under construction (as per the Sites planning permission and current Environmental Permit). It is estimated that they will be completed in the Autumn of 2019. In preparation for the increase in digester capacity GP Biotec would like to increase the limit of the amount of waste that can be accepted onto Site from 55,000 tonnes per annum to 75,000 tonnes, i.e. an increase of 20,000 tonnes per annum or 26.6%.

The increase in available digester storage capacity will be 5400 m3 or 46.49%, so the Site will have a total digester storage capacity of 11,614m3 once the new digesters are complete.

GP Biotec wants to make it clear that this is not a request to alter the amount of blood that the Site can take, that will remain at 30 tonnes per day. In addition to this, following discussions with waste suppliers it is anticipated that the increase in waste will be predominantly an increase in liquid wastes rather than solid wastes.

The table below summarises the proposed increase and the increase in capacity for waste storage, digestate storage and landbank. The information in the table clearly demonstrates the capacity of the Site and related farm business can more than adequately manage the proposed increase of waste accepted onto Site.

2.1 Summary Table

	Proposed increase in permitted waste	Waste Storage	Digester Capacity	Digestate Liquor Storage	Digestate Fibre Storage	Landbank Availability
Current capacity	**55,000m^3**	120m^3	6214m^3	21,000m^3	6,885 m^3	3497.3
Proposed capacity	**75,000m^3**	1300m^3 (already available)	11,614m^3 (available Autumn 2019)	30,000m^3 (available Autumn 2019)	No increase as this more than covers the current and future amounts produced	This is an increase from 938ha in 2018
Increase (m^3)	**20,000m^3**	1100m^3	5400m^3	9,000m^3	N/A	N/A
Increase (%)	**20%**	**90%**	**46.49%**	***32.25%**	**N/A**	**N/A**

2.1 Waste Storage

Waste storage capacity has increased with the installation of two additional storage tanks in the liquid waste reception, an increase in capacity of 200m3 or 60%.

In summary, for a 26.6% increase in the amount of waste, we are proposing to take, we'll be providing a 46.49% increase in digester storage capacity, a 60% increase in waste storage capacity and a 33% increase in digestate storage capacity.

2.2 Digestate Storage

Based on the last 12 months digestate production, the liquor production was 38,991m^3, i.e. a monthly average of 3249.25m^3, therefore for five months (in line with the new of storage capacity would equal 16,246m^3. Our current storage capacity for digestate liquor is 21,000m^3, so it well exceeds the requirement.

A 26.6% increase in waste would very approximately translate to a 26.6% increase in digestate liquor production, so based on the figures above, the monthly average production of liquor would be 4113.5, therefore four months of liquor storage requirement would be 20,567.5m^3 – an increase of 4,321.5m^3, which the Site already has storage capacity for.

Over the last 12 months digestate liquor storage capacity has increased from 16,700m^3 to 21,000m^3, so combined with the proposed lagoons which already have planning permission and are under construction (due for completion Autumn 2019) liquor storage capacity will increase to 30,000m^3, an increase of 32.25%.

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), which again exceeds the capacity required for 5 months storage, which would be 3,780m^3.

2.3 Landbank Availability

Over the past five years GP Biotec and sister company GP Services have successfully focused on increasing landbank availability; this has been down to the positive reception of the value and benefits of digestate as an organic fertiliser.

At the end of 2018 the landbank available to GP Biotec for digestate spreading totalled 938 hectares, which comprised 22 different farms. An increase in customer base has meant that currently 27 farms with a total of 3477.3 hectares are now available (See Annex 1), which means there is the landbank available to absorb the increase in digestate production as a result of the slight increase in waste.

If an average application of 12 tonnes/acre or 29.65 tonnes/hectare, which is a conservative application for most crops and landbank in this area, was made, then the landbank required is 788.73 ha (based on digestate liquor production of 38,991m^3). With the increase in waste digestate liquor production would increase to a maximum of 49,362m3, therefore a landbank of 1664.6 ha would be required. The landbank currently available is 3477.3 ha, so more than enough.

3.0 Infrastructure and Design

3.1 Waste Storage

Liquid ABP waste is currently stored in one of two liquid waste tanks, each of which are 60m^3; both tanks are situated in a bunded pit with a capacity greater than 110% of both 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.

Until six months ago GP Biotec operated the Site using two 60m^3 liquid waste storage tanks, the original plan was to put a third tank into the liquid waste pit as per the original permit. However, due to health and safety issues in particular access, GP Biotec has installed two more narrower tanks within the liquid waste pit, bringing it to a total of four storage tanks. Each of the two new tanks has a capacity of 90m^3, thereby increasing the storage capacity by 180m^3 or 60%. The liquid waste pit is 19 x 4.9 x 5m therefore still has a capacity of greater than 110% of all the tanks. The carbon filter will be able to more than adequately deal with the increase in throughput of air, particularly as the liquid waste is the least odorous waste that the Site takes, currently the carbon is changed approximately every 8 months, so if the carbon was working harder we could simply renew it more frequently.

The roadway would remain the same, as will the waste acceptance, rejection and unloading procedures.

3.2 Process Capacity

The final two digesters are under construction (as per the Sites planning permission and current Environmental Permit). It is estimated that they will be completed in the Autumn of 2019. The increase in available digester storage capacity will be 5400 m3 or 46.49%, so the Site will have a total digester storage capacity of 11,614m3 once the new digesters are complete.

Once complete, all four digester tanks will be bunded by a concrete bund that can hold 110% of the volume of the largest digester tank.

The Site Working Plan, Odour Management Plan and Accident Management Plan will be updated as soon as the additional digester tanks are due to come online.

3.3 Digestate Storage

GP Biotec has been increasing its capacity to store digestate over the past five years. The Master Site Plan illustrates the digestate liquor and fibre storage available on the Farm Site and the corresponding table below details to capacities available.

3.1 Farm Site Digestate Storage

Storage Name	**Type/Bunding**	**Capacity**
DS1	Glass-coated steel tank, concrete bund	1000m^3
Main Liquor Lagoon	Clay lined lagoon	4000 m^3
DL1	Glass-coated steel tank, clay lined bund	900 m^3
DL2	Glass-coated steel tank, clay bund	800 m^3
DL3	Glass-coated steel tank, clay bund	1600 m^3
DL4	Glass-coated steel tank, clay bund	2100 m^3
Lower Lagoon	Clay lined lagoon	

4.1 Off-Site Digestate Storage

Storage Name	**Type/Bunding**	**Capacity**
Cwrt y Plyffin Lagoon	Clay lined lagoon	600 m^3
Pencaemellyn Farm Lagoon	Clay lined lagoon	2000 m^3
Glanusk Tank	Glass-coated steel tank	1600 m^3
Martin Jones	Clay lined lagoon	1800 m^3
Gilfach lagoon	Underground concrete lagoon, under shed, covered with a slattered floor	300 m^3
Pendre Lagoon	Clay lined lagoon	3000 m^3
Pengenfford Tank	Glass-coated steel tank	800 m^3

Total Capacity available is 21,000 m^3, which will increase to 30,000 m^3 once the proposed lagoons which already have planning permission and are under construction (due for completion Autumn 2019).

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), which again exceeds the capacity required for 5 months storage.

All digestate storage is subject to an annual in-house containment audit.

4.0 Emissions and Monitoring

4.1 Emissions to Air

The site is an existing permitted facility that has previously been assessed as part of the original site permit application assuming full electrical load and output.

The air quality impact modelling that was carried out in support of the original permit has now been updated to include the most current metrological data and has been included as part of this application (Air Quality Impact Assessment - see Supporting Documents).

In similarity with the findings of the original assessment, impacts of the Air Quality Impact Assessment have been deemed as insignificant.

Annual emissions testing is carried out on both engines, the emissions have always been under the permitted limits.

4.2 Emissions to Controlled Water

There are no process emissions to water arising from the Installation.

All surface water collected from the ABP waste reception areas is collected and transferred into the digesters. On completion of the two new digester tanks all uncontaminated surface water that collects in the bunded area will be released at point W1 on the Permit Site Plan to where the surface water enters the River Llynfi. The co-ordinates for the location are 315660, 235523.

The surface water collecting at point W1 will be monitored daily, before release a there will be a visual check to ensure that the water is clear and not contaminated, along with a review of the Daily Site Checklist to ensure that no issues e.g. spillages etc have occurred.

4.3 Emissions to Land

There are no emissions to land arising from the installation.

All PAS110 compliant digestate produced by the plant will be transferred by sealed pipework to the Great Porthamel Farm storage lagoon for use as a biofertiliser. The storage and use of digestate falls outside of the permitted installation and is not regulated or controlled by the Permit; however GP Biotec continues to be certified by the Biofertiliser Certification Scheme and therefore only PAS110 and Anaerobic Digestate Quality Protocol (ADQP) compliant digestate (which falls outside of the waste regulatory framework) leaves the Site for application to land. All application rates are based on soil analysis and cropping rotations.

4.4 Emissions to Sewer

There are no emissions to sewer arising from the process. There are no connections to any public or private foul water systems at the site.

4.5 Odour Emissions

It is not anticipated that the increase in waste will increase the potential for odour emissions. The Odour Management Plan will be updated to reflect the use of the further storage tanks in the liquid waste pit, but other than that all of the same procedures and responses to odour issues will remain the same.

Daily odour monitoring is carried out as part of the Daily Checks.

4.6 Noise Impacts

There are no new noise impacts associated with the proposed variation. Both of the proposed activities are existing and are essentially unchanged in regard to noise impact.

4.7 Fugitive emissions

There are no changes to the site activities that introduce any new fugitive emission sources.

5.0 Odour and Accident Management

The Sites current Odour and Accident Management Plans will remain the same as the types of waste and odours/accidents risks remain the same. Both plans will be updated once the construction of the two new digesters are complete.

Annex 1

Name	Farm Name	Address	Hectares Available
[redacted]	[redacted]	Glasbury, Herefordshire HR3 5NL	141
[redacted]	[redacted]	Scethrog, Brecon, Powys LD3 7EJ	46.47
[redacted]	[redacted]	Llandefalle, Brecon, Powys, LD3 0NB	246
[redacted]	[redacted]	Archenfield, Hay-On-Wye, Herefordshire HR3 5TB	202.42
[redacted]	[redacted]	Vowchurch, Herefordshire	404
[redacted]	[redacted]	Three Cocks, Brecon, Powys LD3 0SW	24.74
[redacted]	[redacted]	Llanfaredd, Builth Wells, Powys LD2 3TE	350
[redacted]	[redacted]	Talachddu, Brecon, Powys LD3 9TH	60
[redacted]	[redacted]	Talgarth, Brecon, Powys LD3 0DN	81.1
[redacted]	[redacted]	Llanspyddid	40
[redacted]	[redacted]	Llanwern, Brecon	91.1
[redacted]	[redacted]	Glasbury	7.27
[redacted]	[redacted]	Trefeittha, Brecon, Powys LD3 0RN	180
[redacted]	[redacted]	Glasbury, Herefordshire, Powys HR3 5LU	82.3
[redacted]	[redacted]	Boughrood Brest, Brecon, Powys LD3 0BQ	14
[redacted]	[redacted]	Talachddu, Brecon, Powys LD3 9TN	80
[redacted]	[redacted]	Boughrood, Brecon, Powys LD3 0YG	242.1
[redacted]	[redacted]	Brecon	100
[redacted]	[redacted]	Llanspyddid	12
[redacted]	[redacted]	Maesmynis, Builth LD2 3HU	60

[redacted]	[redacted]	Clifford, Herefordshire	323
[redacted]	[redacted]	Pengenffordd, Brecon, Powys LD3 0HA	32.38
[redacted]	[redacted]	Treffeca, Brecon	120
[redacted]	[redacted]	Dorstone, Hereford, HR3 5SU	80
[redacted]	[redacted]	Clifford, Herefordshire HR3 5EP	203.42
[redacted]	[redacted]	Llangorse	133
[redacted]	[redacted]	Llyswen, Brecon, Powys LD3 0UT	121
TOTAL Available			**3477.3 ha**