

Natural Resources Wales Permitting Decisions

Bryn Power Limited (Gelliargwellt Farm Anaerobic Digester Facility)

Decision Document

Application for a Substantial Variation

The application number is: PAN-025512

The permit variation number is: EPR/AB3092ZE/V007

The operator is: Bryn Power Limited

**The Installation is located at: Gelliargwellt Farm Anaerobic Digester Facility,
Gelliargwellt Farm, Gelligaer, Hengoed, CF82 8FY**

Purpose of this document

This decision document:

- explains how the application has been determined
- provides a record of the decision-making process
- shows how all relevant factors have been taken into account
- justifies the specific conditions in the permit other than those in our generic permit template.

Unless the decision document specifies otherwise, we have accepted the operator's proposals.

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1. Executive summary

1.1. Application summary

Bryn Power currently holds an environmental permit (reference: EPR-AB3092ZE) for anaerobic digestion activities at Gelliargwellt Farm. This application is to increase the capacity of the anaerobic digestion facility by increasing the waste throughput from 35000 to 45000 tonnes per annum and installing the following additional infrastructure:

- One 3128m³ primary digester;
- One 3128m³ storage tank;
- One 134m³ pasteuriser; and
- One Combined Heat and Power (CHP) engine (net rated thermal input of 2.6 MW).

We have added two Improvement Conditions for noise. We have also added a preoperational condition for the new infrastructure.

There are no change to operational procedures and current waste acceptance procedures. The site will continue to store no more than 30 tonnes at any one time. No additional waste codes have been added to Table S2.1 in Schedule 2 of the permit. The addition of the new plant confirms the actual physical capacity to increase from 182 tonnes to 371 tonnes per day. However as stated above and in reality the waste throughput will be increasing from 35000 to 45000 tonnes per annum. This is approximately 27 tonnes per day and far less than the actual physical capacity

1.2. Our decision

We are minded to issue the variation for Gelliargwellt Farm operated by Bryn Power Limited.

2. Receipt of the application

The original application received on 19/04/2024 was submitted as a normal variation and following the receipt of an up to date site capacity assessment it was confirmed on 19/03/2025 to be a substantial variation application. This decision was taken in accordance with Regulatory Guidance Series, No RGN 8 “Substantial changes in

operation at installations, mining waste facilities and other facilities involving solvent and combustion” In addition, during the duly making process and on 04/08/2025 the operator requested to increase the waste throughput from 35,000 to 45,000 tonnes per annum.

In order for us to be able to consider the application duly made, we needed more information. We requested the following:

- Information on the existing and proposed CHPs;
- Clarification on the air monitoring and noise impact assessments;
- Revised risk assessments and management plans including those for odour, noise, fugitive emissions, accident, residue plans and best available techniques (BAT);
- Risk assessment for the on-site lagoon;
- Updated site capacity calculation; and
- Current drainage plan.

Letters and emails requesting this information were sent to the operator on 11/02/2025, 26/03/2025, 29/07/2025, 07/08/2025, and 03/10/2025. Upon receipt of this information, on 04/11/2025, we were able to consider the application duly made. This meant that we considered it was in the correct form and contained sufficient information for us to begin our determination, but not that it necessarily contained all the information we would need to complete that determination.

3. Confidential information

The operator made no claim for commercial confidentiality, and we have not received information in relation to the application that appears to be confidential in relation to any party.

4. Legislation

The variation will be issued, under Regulation 20 of the EPR. The Environmental Permitting regime is a legal vehicle which delivers most of the relevant legal requirements for activities falling within its scope. In particular, the regulated facility is:

- an *installation* as described by the IED;

- subject to aspects of the Well-Being of Future Generations (Wales) Act 2015 and the Environment (Wales) Act 2016 which also have to be addressed; and
- Medium Combustion Plant Directive (MCPD).

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that the decision on this application is consistent with its general purpose of pursuing the sustainable management of natural resources (SMNR) in relation to Wales and applying the principles of SMNR. In particular, NRW acknowledges that it is a principle of sustainable management to take action to prevent significant damage to ecosystems. We consider that, in issuing the variation a high level of protection will be delivered for the environment and human health through the operation of the Installation in accordance with the permit conditions.

As the EPR regulator in Wales, NRW are required to determine any duly made permit application. This means that we must decide either to grant, or to refuse the variation based upon an objective assessment of the proposals against the detailed legal requirements of EPR. Our public participation statement¹ gives more information on what can, and cannot, be taken into account when making our permitting decision.

The application, and this decision document, only considers the permitting of the facility under EPR as described throughout the document. We only assess the installation and its impacts and cannot take into consideration indirect impacts which are not as a direct result of activity within the installation boundary.

Any proposed development and wider associated activities will be required to be compliant with all relevant and applicable law, for example, environmental law, health and safety law, planning law. This other legislation acts largely independently of EPR (although they may be inter-related). Such other matters are beyond both the scope of this document, and of our regulatory remit and expertise and are not relevant to our EPR permitting decision. Ensuring compliance with all other regulation and obtaining any required consents (such as planning permission) is the responsibility of those

¹ [Natural Resources Wales / Public participation: how you can take part in our permit and licence consultations](#)

undertaking the development and is regulated by the relevant appropriate authority for each.

5. Consultation

5.1. Consultation on the Application

We have carried out consultation on the application in accordance with the Environment Permitting Regulations (EPR), our statutory Public Participation Statement (PPS) and our Regulatory Guidance.

A copy of the application was available on the public register for anyone to view. We advertised the application to the public by a notice placed on our website directing people to the public register, advising them of how they could arrange for copies to be made if required and how they can provide comments.

We also consulted with the following bodies, in line with our Public Participation Statement:

- Health and Safety Executive
- Public Health Wales
- Caerphilly County Borough Council Planning Department
- Caerphilly County Borough Council Environmental Health

These are bodies whose expertise, democratic accountability and/or local knowledge make it appropriate for us to seek their views directly.

The consultation started 11/11/2025 and ended on 11/12/2025.

A summary of consultation comments and our response to the representations we received can be found in Annex 3. We have taken all relevant representations into consideration in reaching our decision.

5.2. Draft Permit Consultation

We carried out consultation on our draft decision. This consultation began on 24/07/2026 and ended on 24/08/2026.

6. Requests for information

Further information was requested during determination by way of a Schedule 5 Notice requiring the operator to provide further information relating to the Noise Impact Assessment. The Schedule 5 Notice was sent on 13/01/2026 with a deadline for response of 13/02/2026.

The operator's initial response to the Schedule 5 Notice was provided on 06/02/2026. The additional information supplied did not satisfy the requirements of the Schedule 5 Notice and a response was sent on 09/03/2026 to confirm this.

The operator provided further information on 29/04/26, and on 27/05/26, we confirmed that the response satisfied the requirements of the Schedule 5 Notice.

A copy of the information notice(s) and e-mails requesting further information were placed on our public register as were the responses when received. Please see Section 10.5 for further information on the noise impact assessment for the proposal.

7. The Installation

7.1. The permitted activities

The regulated facility is currently an installation which comprises the following activities listed in Part 2 of Schedule 1 to the Environmental Permitting Regulations:

- S5.4A(1)(b)(i) Recovery or a mix of recovery and disposal of non-hazardous waste with a capacity exceeding 75 tonnes per day (or 100 tonnes per day if

the only waste treatment activity is anaerobic digestion) involving one or more of the following activities: Biological Treatment.

An installation may also comprise “directly associated activities”, which at this Installation includes:

- Biogas storage and supply system;
- Emergency Flare Operation; and
- Burning of Waste as a Fuel.

The regulated facility also undertakes a waste operation, as follows:

- R3: Recycling/reclamation of organic substances which are not used as solvents;
- R13: Storage of waste pending any of the operations numbered R1 to R3 (excluding temporary storage, pending collection, on the site where it was produced); and
- D15: Storage pending any of the operations numbered D1 to D14 (excluding temporary storage, pending collection, on the site where it is produced).

The installation is also subject to Schedule 25A of EPR – Medium Combustion Plant (MCP) for the following:

- 1 x 1.6 net rated thermal input (MW_{th}) CHP engine
- 1 x 1.14 MW_{th} CHP engine

These are classed as existing medium combustion plant by way of the legislation as they were put into operation before the 20 December 2018. The compliance date for these existing MCPs is 1 January 2030 and they will therefore be added to Schedule 1 of the permit as directly associated activities. They have no associated emissions monitoring and reporting requirements.

Together, these listed and directly associated activities comprise the Installation.

7.2. Changes to the installation

The operator currently holds an environmental permit for anaerobic digestion activities at Gelliargwell Farm. Under the existing permit, operations at the site comprise of the treatment of organic wastes by anaerobic digestion and combustion of the resultant biogas to produce heat and electricity. This variation adds the following infrastructure:

- One 3128m³ primary digester;
- One 3128m³ storage tank;
- One 134m³ pasteuriser; and
- One CHP engine of 2.6MW_{th} capacity.
- Increasing waste throughput in Table S3.1 in Schedule from 35,000 to 45,000 tonnes per annum.

The combined heat and power (CHP) has a net rated thermal input of 2.6 MW and as it will be put into operation after 20 December 2018 under Schedule 25A of the EP Regulations, it will be classed as a new medium combustion plant. Emission limit values (ELVs) set out in the Medium Combustion Plant Directive (MCPD) for this type of combustion appliance need to be met. The CHP is fuelled on biogas.

Although the plant will generate electricity, it is not subject to Schedule 24B of the EP Regulations – which concerns Specified Generators - as this Schedule does not apply to combustion units that form part of installations that fall within the scope of Chapter II of the Industrial Emissions Directive. 2010/75/EU

The additional solid and liquid waste will be accepted, pretreated and treated in the additional plant as per the existing operating techniques and procedures currently followed and accepted on site. The current waste acceptance procedures have not changed. The amount of solid waste stored at any one time in the waste reception building has not changed and remains at 30 tonnes maximum. The hours of operation and delivery times have not changed.

The additional cow slurry produced on the onsite farm will be pumped into the additional plant as per the existing operating procedures and techniques. As per the current process, the anaerobic digestion process is fully enclosed within the digester units and connected pipework.

The operator has provided a detailed description of the process and has confirmed that this will not change following the variation. We have provided this below:

All additional incoming vehicles delivering feedstock to the facility will continue to enter the site via the entrance and proceed to the weighbridge. Documentation will be checked by the weighbridge operative to ensure that the material being delivered is of the correct type. The relevant documentation will be signed by the operative to confirm the acceptance/receipt of the material prior to the driver being allowed to proceed to the specific storage area. The operator has confirmed there will be an increase of 4 deliveries during the day, from 16 to 20 following the variation. See Section 10.5 for more information on noise emissions. Vehicles will enter the negative air pressure reception building through a high speed, roller shutter door. The door completes an opening and closing sequence in 24 seconds. All waste reception takes place once doors are closed and doors are only opened during vehicle movements in/out of the reception hall. The operator explains that the fast-acting, automatically operated doors are designed to reduce fugitive odour emissions and all raw waste is contained within the waste reception building which is held under negative pressure. The waste reception building is fitted with a fan ventilation system through which foul air is passed through two-stage scrubbers and bio-filters with a design performance of at least 95% odour removal. A de-packaging stage removes contamination from the materials.

The reception of solid food waste will continue to take place solely within the waste reception building and liquid food waste will be fed directly into the non-ABP buffer tank and then into the AD process, as per the current procedures and techniques.

Waste materials are held and fed at the correct balance through the system to the holding tank prior to digestion. The feedstock is fed into the digesters for the required amount of time, at least 33 days, before being pasteurised. The material is then stored for at least 33 days. Material is passed from the pasteurisation tanks into the storage tanks through pumped sealed piping for further gas capture and retention of approximately 33 days. Material is then released and stored as a whole digestate

product within the storage lagoon and in accordance with existing techniques and procedures. All biogas formed within the digesters collects in the airspace in the very top of the tanks and is subsequently treated through the addition of oxygen and ferric chloride. The additional biogas following the proposal is then pumped to the CHP units where it is combusted to form electricity and heat. The entire process is enclosed, and the operator has confirmed that no emissions will be vented during the digestion process.

The operation of the proposed AD plant is fully automated from an on-site central Control Panel which monitors information transmitted from field instrumentation around the plant. The Control Panel and HMI/SCADA system are situated in a control building connected to the digester. Marches Biogas, an Anaerobic Digestion engineering company provides a remote monitoring service via an internet connection so that changes can be made, and advice given to ensure optimisation of the AD process. The system also allows Bryn Power to monitor the site remotely. The Control System is bespoke and designed for the Bryn Power AD facility. Plant operators will receive formal training in use of the HMI system. The Control System facilitates optimal operation of the AD plant and provides a constant communication portal with Marches Biogas engineers. The operator has confirmed that it will continue to be responsible for the operation and maintenance of all the equipment and infrastructure as per existing techniques and procedures.

See Section 9.3 and 10.1 for more information on emissions to air and containment. The additional infrastructure will operate continuously as per the current digesters. The flare will be replaced and its use will only be required for short periods of breakdown or maintenance of the facility to flare off excess biomethane.

8. Operation of the installation

8.1. Operator competence

The operator is the sole operator of the Installation. We are satisfied that the operator is the person who will have control over the operation of the Installation after the variation is issued, and that they will be able to operate the Installation so as to comply

with the conditions included in the permit, if issued. The decision was taken in accordance with EPR RGN 1 Understanding the meaning of operator².

Relevant Convictions

The operator has declared they have no relevant convictions. NRW's COLINS Database has been checked to confirm there are no relevant convictions. No relevant convictions were found.

Financial Provision

The operator has declared they have no current or past bankruptcy or insolvency proceeding against them.

There is no known reason to consider that the operator will not be financially able to comply with the permit. The decision was taken in accordance with RGN 5 on Operator Competence.

Technical competence

Technical competency is required for the proposed activities. The operator satisfies the criteria in RGN 5 on Operator Competence³. The operator holds the Chartered Institute of Wastes Management/Waste Management Industry Training and Advisory Board (CIWM/WAMITAB) qualification which is required for technically competent managers at permitted waste facilities in Wales. Evidence by way of a certificate has been provided during the duly making and determination process.

8.2. Environmental Management System

The operator has stated in the application that they will implement an Environmental Management System (EMS) that will meet the requirements for an EMS in our “How to comply with your environmental permit” guidance⁴. The management system is confirmed as ISO 14001 and a copy of the certificate of approval has been submitted. We have reviewed the application and are satisfied that appropriate management systems and management structures will be in place for this Installation, and that

² [RGN 1 Understanding the meaning of 'operator' \(naturalresources.wales\)](#)

³ [regulatory-guidance-note-5-operator-competence.pdf \(naturalresources.wales\)](#)

⁴ [Natural Resources Wales / Guidance to help you comply with your environmental permit](#)

sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

Accident management

The EMS includes an Accident Management Plan which the operator has submitted as part of this application. We have reviewed this and are satisfied that appropriate controls are in place to help reduce the occurrence and impact of any accident that occur. The operator has confirmed that it has a full-service contract with Marches Biogas which covers all Anaerobic Digestion equipment and full contracts with Clarke Energy and Edina to cover the CHP equipment.

In order to ensure that the management system proposed by the operator sufficiently manages the residual risk of accidents, permit condition 1.1.1a requires the implementation of a written management system which addresses the pollution risks associated with, amongst other things, accidents.

Site security

The operator has confirmed that the installation includes site security measures to prevent unauthorised access. This includes a security gate at the entrance to the site and all visitors are required to sign in at the Site Office on arrival and exiting the site.

Having considered the information submitted in the application, we are satisfied that appropriate infrastructure and procedures will be in place prior to start up to ensure that the site remains secure.

8.3. Operating techniques

Installation activities and assessment of Best Available Techniques

The operator has described the proposed equipment and operating techniques and compared these against the relevant guidance notes and Best Available Techniques conclusions (BATc) which for an installation of this type is: [Best Available Techniques \(BAT\) Reference Document for Waste Treatment 2018](#).

We have reviewed the techniques proposed and consider them to represent BAT at this installation and meet the requirements outlined in the BATc.

We have specified that the applicant must operate the permit in accordance with descriptions in the application. These descriptions are specified in the Operating Techniques (Table S1.2) table in the permit and will include the following reports:

- Fugitive Emission Management Plan
- Environmental Risk Assessment
- Operating Techniques
- Residue Management Plan
- Noise and Vibration Management Plan
- Odour Management Plan
- Accident Management Plan
- Management System
- Non Technical Summary
- Energy Efficiency and Management
- Lagoon risk assessment
- Bioaerosol Monitoring Plan

We have also specified the operating techniques should include the Leak Detection and Repair (LDAR) Programme as required by Improvement Condition 10.

As the new CHP is an MCP, the site must adhere to the following operating techniques specific to MCPs as detailed in Schedule 1, Table 1.2A of the permit.

- Each MCP must be operated in accordance with the manufacturer's instruction and records must be made and retained to demonstrate this.
- The operator must keep periods of start-up and shut down of each MCP as short as possible.
- There must be no persistent emission of 'dark smoke' as defined in Section 3(1) of the Clean Air Act 1993.

Efficient use of raw materials, water and energy

In line with the site's management system, energy reviews are undertaken on an annual basis by the Group Manager, confirming the site's main energy uses, and any identified opportunities for energy efficiency improvements. Findings are discussed with senior management as part of the annual review.

Having considered the information submitted in the application, we are satisfied that the operator will ensure that raw materials, water and energy is used as efficiently as possible.

In line with the site's management system, energy reviews are undertaken on an annual basis by the Group Manager, confirming the site's main energy uses, and any identified opportunities for energy efficiency improvements. Findings are discussed with senior management as part of the annual review.

The operator will be required to report energy usage under condition 4.2 and Schedule 4 of the permit. The following parameters are required to be reported electricity and water usage. This will enable us to monitor energy recovery efficiency at the Installation.

Avoidance, recovery or disposal of wastes produced by the activities

Having considered the information submitted in the application, we are satisfied that the waste hierarchy referred to in Article 4 of the WFD will be applied to the generation of waste and that any waste generated will be treated in accordance with this Article.

We are satisfied that waste from the Installation that cannot be recovered will be disposed of offsite using a method that minimises any impact on the environment. Permit condition 1.4.1 of the permit will ensure that this position is maintained.

9. The site

9.1 Site Plan

The operator has provided an updated plan which we consider is satisfactory, showing the extent of the site of the facility and the new emission points.

The updated plan will be included in the permit and the operator will be required to carry on the permitted activities within the site boundary.

9.2 Site Condition Report

The proposal does not include the addition of any land and so a Site Condition Report was not required to support this application.

9.3. Site protection: potentially polluting substances and prevention measures

The operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED.

The containment risk assessment supplied with the application indicates that the overall site risk rating is Medium. A risk to the environment associated with this proposal is in the event of a catastrophic failure of the primary containment of tanks and silos containing liquids.

The operator submitted a CIRIA report C736-Containment solutions for the prevention of pollution (CIRIA C736 guidance) risk assessment for the additional infrastructure associated with the increased waste throughput. The operator confirms that the emergency storage for the site is designed in accordance with the CIRIA C736 guidance, Chapter 8 entitled “Earth banked containment basins (lagoons) earth bunds and earth floors”. The design meets the requirement for class 2 secondary containment.

Secondary containment is separate to the primary containment and its purpose is to contain the contents of the primary containment in the event of an escape of the contained liquid. Tertiary containment minimises the consequences of a failure in the primary and secondary containment systems by providing an additional barrier in the event of an escape of the contained liquid.

The existing plant containing liquid associated with the anaerobic digester activity is the following:

- One 3128m³ Semi-Plug Flow (SPF) Primary Digester;
- One 3128m³ Storage Tank;
- One 500m³ Non-Animal By-Product (ABP) Liquids Buffer Tank;
- One 300m³ Sealed Buffer Tank (for ABP feedstocks); and
- One 134m³ ABP Pasteurisation Tank.

The operator confirms that these tanks are located in the common bund area. The bund has been constructed below the site with a fully welded 2.00mm thick HDPE (High-Density Polyethylene) membrane which extends up the perimeter bunds and wall such that the containment volume is achieved with an approximate freeboard of 400mm. The following infrastructure will be added to the bunded area.

- One 3128m³ Semi-Plug Flow (SPF) Primary Digester
- One Storage tank 3128m³
- One Pasteurisation Tank 134m³

The total capacity of the tanks stored in the bunded area following the variation is therefore 13,580m³.

The operator has confirmed that the containment volume is calculated as 5,700m³. The recognised industry standard CIRIA C736 guidance states: “where there are two or more tanks, the recommended capacity of the bund is the greater of either: 110% of the capacity of the largest tank within the bund or 25% of the total capacity of all the tanks within the bund”

The operator has confirmed that:

- The combined capacity of the tanks proposed to be contained within the area is 13,580m³ and that 25% of this is 3395m³.
- The largest tank within the bund will be 3128m³ and 110% of this is 3441m³

The capacity of the bund is the greater of 110% of the capacity of the largest tank within the bund and also 125% of the total capacity of all the tanks within the bund. Therefore, the capacity of the bund providing secondary containment is sufficient.

The site is formed of concrete hard standing with sealed drainage system. The tertiary containment system involves pressure alarm systems on all tanks, checks on the stream downstream of the AD plant and an emergency plan to dam the stream and create a temporary bunded area below the AD plant.

The reduced level area is emptied of rainwater regularly to maintain the containment capacity. Currently all surface water collected in the reduced level area is collected in a sump and held until such time that the quality of the water is assessed in line with Table 3.2 of the permit. If suitable the water is discharged into the adjacent stream. If the ammonia results are higher than 0.5ppm, the limit set then the water is pumped to the AD liquids storage tanks and treated via the AD system.

The operator has a duty to ensure that soil and groundwater are protected in order to meet the requirements of Articles 14 (1)(b), 14(1)(e) and 16(2) of the IED.

Part 3 of the preoperational condition referred to in Section 1.1 and Annex 1 requires the following:

- Confirmation that containment has been provided by a fully welded 2.00mm thick HDPE membrane laid below the site and extending up the perimeter bunds and wall such that the containment volume is achieved with an approximate freeboard of 400mm.

This is as per the application document “Proposed amended site layout for the new anaerobic digestion facility” received on 19/04/2024.

Based upon the information in the application we are satisfied appropriate measures will be in place to protect the site and its surroundings from polluting substances.

10 . Environmental Risk Assessment

Regulated activities can present different types of risk to the environment, these include odour, noise and vibration; accidents, fugitive emissions to air and water; as well as point source releases to air, water, sewer and discharges to ground or groundwater, global warming potential and generation of waste. All these factors have been considered during the determination and the relevant risks from this proposal are discussed in this and other sections of this document.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of emissions from the Installation on human health and the environment and what measures we are requiring ensuring a high level of protection.

In line with our guidance, the operator has provided an environmental risk assessment with the application which identifies and the sources of key risks from the variation, possible pathways and receptors. This risk assessment and further assessments provided by the operator and/or completed by NRW will be discussed in further detail below.

10.1. Assessment of impact on air quality

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the stack and its impact on local air quality.

The operator has assessed the Installation's potential emissions to air against the relevant air quality standards, and the potential impact upon human health in line with relevant guidance⁵. These assessments predict the potential effects on local air quality from the Installation's stack emission.

⁵ [Air emissions risk assessment for your environmental permit - GOV.UK \(www.gov.uk\)](https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit)

The AD plant includes two existing combined heat and power (CHP) engines which do not form part of this variation application. A third larger CHP is proposed as part of this variation. There are two 'small waste incineration plant' (SWIPs). These are regulated by the local authority and do not form part of this variation application. Emissions to air from the existing CHPs and SWIP's and the proposed new CHP have been considered in the assessment.

The air impact assessment, and the dispersion modelling has been based on the Installation and the two SWIPs operating continuously at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rates.

We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the operator used dispersion models, its selection of input data, use of background data and the assumptions it made have been reviewed by Natural Resources Wales modelling specialists to establish the robustness of the operator's air impact assessment. The output from the model has then been used to inform further assessment of health impacts. Our checks indicate that we are in general agreement with the consultant's provided predicted concentrations for both human and ecological receptors.

The operator has calculated process contributions (PC) and predicted environmental concentrations (PEC) at locations within the immediate vicinity and all identified sensitive receptor locations. The modelling results for each pollutant will be discussed separately below.

Nitrogen dioxide (NO₂)

Emissions of NO₂ were assessed against the long-term Air Quality Standard (AQS) of 40 µg/m³ (annual) and short term AQS of 200 µg/m³ (hourly), not to be exceeded on more than 18 occasions in a year.

At sensitive human receptor locations the maximum predicted long-term PC was >1 % of the long-term AQS, and the long-term PEC was <70 % of the long-term AQS.

Therefore, in accordance with the relevant guidance and Air Quality Standards⁵ the long-term impacts from NO₂ can be considered as insignificant.

At sensitive human receptor locations the maximum predicted short-term PC was <10 % of the short-term AQS. Therefore, in accordance with the relevant guidance⁵ and AQSs the short-term impacts from NO₂ can be considered insignificant.

Sulphur Dioxide (SO₂)

Emissions of sulphur dioxide (SO₂) were assessed against a long-term AQS of 125 µg/m³ (24-hour mean) and short term AQS of 350 µg/m³ (1-hour mean).

At sensitive human receptor locations the maximum predicted long-term PC was >1 % of the long-term AQS, and the long-term PEC was <70 % of the long-term AQS at all sensitive receptors, except at receptor number 16, the farm house within the installation boundary. Here the 24-hour mean PC was 10.45%. The operator has confirmed that the estimated background concentration of SO₂ in the local area is 3.24 µg m⁻³ as an annual average, which can be doubled to 6.48 µg m⁻³ as a short-term background.

At sensitive receptor locations the maximum predicted short-term PC was <10 % of the short-term AQS. Therefore, in accordance with the relevant guidance⁵ and Air Quality Standards the short-term impacts from SO₂ can be considered insignificant.

Volatile Organic Carbons (Benzene C₆H₆)

The operator has confirmed that there are no assessment levels for total emissions of Volatile Organic Compounds (VOCs), although there is an AQS for Benzene. However, there is no information available regarding the proportion of Benzene that may be present in the VOC emission discharged from the CHP and SWIP plants, and as such, there is no directly comparable assessment criterion for the emission of VOCs. Benzene is however, considered likely to be a very small percentage of the total emission from each of the plant. As such, the assessment assumes that Benzene accounts for up to 5 % of the total VOC release, and results are assessed on that basis. We are in agreement with this approach.

Emissions of benzene were assessed against a long-term AQS of 5 µg/m³ (annual). At sensitive receptor locations the maximum predicted long-term PC was <1 % of the long-term AQS and the long-term PEC was <70 % of the long-term AQS. Therefore, in accordance with the relevant guidance⁵ and Air Quality Standards the long-term impacts from benzene can be considered as insignificant.

A bioaerosol risk assessment is not required as the operator has confirmed that the nearest sensitive receptor is over 250m away from the installation, as per the Technical Guidance Note (Monitoring) M9 Environmental monitoring of bioaerosols at regulated facilities from the Environment Agency. There will be no change to the monitoring requirements for bioaerosols which will continue to be monitored as per Table S3.4 of the permit. The biofilter in the waste reception building will also continue to be monitored as per Table S3.3 of the permit.

Emission limits

We have decided that emission limits should be set for the parameters listed in the permit.

Emission limit values for the new CHP at emission point A10 and fuelled with biogas are in line with those contained within the Medium Combustion Plant Directive (MCPD).

It is considered that the emission limit values or technical measures described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.

Based upon the information in the application and the measures that will be imposed by the permit we are satisfied that the appropriate measures will be in place to protect air quality for the environment and human health.

10.2. Assessment of impact to surface and ground water

The proposal does not include an additional direct discharge to surface water. There is already a discharge to surface water at emission point W1. All surface water that is collected in the reduced AD working area will continue to be collected in a sealed sump and held until the quality of the water is assessed and water discharged into an adjacent stream via emission point W1. See Section 9.3 for more information.

Emission Limits

Emission limits will not change from those set out in the permit. Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent pollution of ground and surface water.

10.3. Fugitive emissions

The operator has identified the following potential fugitive emissions in their environmental risk assessment and fugitive emissions management plan:

- Dust, mud and litter
- Biogas release
- Particulates
- VOCs (Volatile Organic Carbons)
- Pests

The operator has confirmed that the potential for dust emissions to occur on site is low. The waste reception area is within a building with fast action roller doors. The building is kept under negative pressure and air is passed through a biofilter before being released to atmosphere. Vehicles will be inspected entering and leaving the site and the roadways will be maintained and kept clean to prevent dust or mud arising from vehicle movements. The operator has confirmed it operates to strict waste acceptance procedures and the nature of feedstocks minimises the risk of litter being present.

For potential VOC releases, the operator has confirmed that the operation of the plant will be managed and operated in accordance with their operating techniques which includes inspection and maintenance of plant equipment and engine management systems. The operator has confirmed that the new plant will be serviced in line with manufacturers guidelines to help minimise emission releases. For example, every

three years or after a major plant alteration, the plant will be inspected with a methane identifying camera to identify any leaks. As confirmed in Section 1 and 9 we have added a pre-operational condition, POM4 for the inspection of the new plant to identify any leaks, as part of the commissioning. See Section 12.3 and Annex 1.

The operator has confirmed it has adequate pest control provisions and monitoring to ensure pest and vermin levels remain low. These are checked on a weekly basis by a specialist contractor, who will also carry out independent inspections.

The application details measures which will be in place for preventing and minimising fugitive emissions. The Fugitive Emissions Management Plan and risk assessment has been reviewed and updated following the proposal to increase the throughput of waste and will be added as an Operating Techniques in Table S1.2 of the permit. Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where that is not practicable to minimise fugitive emissions and to prevent pollution from fugitive emissions.

Permit condition 3.2.1 requires that emissions of substances not controlled by emission limits (i.e. fugitive emissions) shall not cause pollution. Condition 3.2.2 requires that a management plan shall be developed if pollution is subsequently identified. Permit Condition 3.6.1 requires that the activities shall not give rise to the presence of pests, which are likely to cause pollution.

10.4. Assessment of odour impact

There are sensitive receptors within the vicinity of the installation. These sensitive receptors predominantly lie to the East of the facility in Gelligaer (>550m) and Penybryn. The nearest dwellings and closest sensitive receptors are Alpine/Tophill Cottage which are situated 200 metres away. Greenacres Bungalow and Tophill Farm are located 315 and 470 metres away respectively. It is now understood that the four nearest sensitive receptors are in ownership of the operator.

The operator has confirmed that there is a potential for exposure to odour at the sensitive receptors and at locations where members of the public may be exposed,

especially considering increased feedstock input and site capacity. The operator has identified the following sources of odour in their environmental risk assessment:

- Storage of raw material feedstock; and
- Waste activities.

The operator has submitted an Odour Management Plan (OMP) which has been reviewed and updated following the proposal to increase the throughput of waste. It details various measures to minimise and mitigate odour issues. These measures include:

- Pre-acceptance waste procedures where food wastes shall only be accepted for pretreatment if they conform to the input materials supply agreement
- Processing of odorous wastes on day of delivery.
- Liquid food waste is delivered to site in sealed vehicles and delivered into intake tanks
- Solid waste is delivered to site in covered containers and stored within the negative air pressure waste reception building
- Pre-treatment operations take place in a building which is subject to negative air flow exhausted into a bio filter to minimise the release of odour, bioaerosols and microorganisms
- Activities shall be managed and operated in accordance with a management system, including site inspections and regular site maintenance
- Daily odour checks around the site boundary
- Good housekeeping including checks for site cleanliness

We have compared the measures proposed to minimise odour at for the site to the Best Available Techniques (BAT) Conclusions for Waste Treatment and H4 Odour Management⁶ and are satisfied the techniques represent appropriate measures for the installation. The OMP will be incorporated into the operating techniques section of the permit. Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of odour.

⁶ [H4 Odour Management / How to comply \(publishing.service.gov.uk\)](https://www.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/614442/H4_Odour_Management_-_How_to_comply.pdf)

Condition 3.3.1 in the permit will also require that emissions from the activities are free from odour at levels likely to cause pollution outside the site. We are satisfied that this will be sufficiently protective in conjunction with the measures described by the operator for minimising odour at the installation.

10.5. Noise and vibration assessment

There are sensitive receptors within the vicinity of the installation. These sensitive receptors predominantly lie to the East of the facility in Gelligaer (>550m) and Penybryn. The nearest dwellings and closest sensitive receptors are Alpine/Tophill Cottage which are situated 200 metres away. Greenacres Bungalow and Tophill Farm are located 315 and 470 metres away respectively. It is now understood that the four nearest sensitive receptors are in ownership of the operator.

A Noise Impact Assessment (NIA) has been provided which predicts noise levels from the operation of the proposal in addition to the existing infrastructure. This has been audited by NRW's air quality and noise team.

Following the audit, it was confirmed that more information was required in relation to the impact on daytime noise, including the increase in HGV movements, and justification and/or mitigation measures for the significant adverse impact which has been predicted at several residential receptors. The NIA was revised and resubmitted and confirmed that HGV movements have been included in the sound propagation modelling, as requested by NRW.

With regards to the request for justification and/or mitigation measures for the significant adverse impact which has been predicted at the four nearest several residential receptors, it was confirmed that these dwellings were in ownership of the operator and that these impacts can be reduced from significant adverse to adverse. We do not agree with the context argument, which hinges on the ownership of these properties by the operator. However, other context arguments could be made

With regards to the properties not under applicant ownership at the Claerwen Estate, these will be subject to a significant adverse impact at night, i.e. 12dB over the 2010 background sound level. The consultant argues that neighbours would be permitted to use an air source heat pump up to 37dB. Although this is not an acceptable argument for context of the specific site noise, it does illustrate that sound levels will be relatively quiet at night.

We have therefore added an Improvement Condition for the operator to undertake a BS4142 assessment once the new plant is operational to determine the impact of the site on nearby receptors through a monitoring survey. If the results of the assessment still indicate a significant adverse impact at receptors, further mitigation measures should be identified and put into place. See Annex 2 below.

We have also added an Improvement Condition with regards to Section 8 of the NIA “Attenuation measures and best available techniques”, which states that the following mitigation measures should be put in place:

- New compressors should be housed in proprietary acoustic enclosures to achieve 50dB(A) at 10m
- Ensure CHP is enclosed in container with attenuators on intake/discharge louvres and exhaust silencer, with low noise cooling fans to achieve 55dB(A) at 10m. If practical, mount cooling fans on floor adjacent to container as opposed to high level on roof of unit.

The mitigation measures are to be put in place (Improvement condition IC11) before the BS4142 assessment (Improvement Condition IC12).

The operator has confirmed there will be an increase in deliveries during the day from 16 to 20. The application details measures which will be in place for preventing and minimising noise and/or vibration. The operator has reviewed and updated its Noise Management Plan (NMP) to account for the increase in throughput of waste and additional infrastructure. The Site Capacity Assessment submitted demonstrates that the site's designed capacity is considered appropriate for the proposed annual

tonnage receipt and the application also considers the increased vehicle movement in and out of site. The operator has confirmed that the site has a traffic system which controls the access of vehicles to and from site to ensure that noise and vibration levels remain low. In addition the following mitigation measures are in place to ensure noise and vibration levels are as low as reasonably possible.

- All vehicles, plant and machinery operated at the site will be maintained in accordance with the manufacturer's specification and be fitted with effective silencers, where appropriate.
- Management schedules adhered to for onsite infrastructure.
- Pre-notification of all incoming waste.
- Only licensed waste carriers used.
- All drivers will be inducted to site rules and site delivery times as per permit and planning permission.
- Supervision of material unloading.
- Restriction of deliveries to between 07:00 to 18:00 hours.
- The majority of waste deliveries take place inside a designated enclosed building.

We have compared the measures proposed to minimise noise at for the site to BAT and are satisfied the techniques represent appropriate measures for the installation. The updated NMP will be incorporated into the operating techniques section of the permit.

We are satisfied that vibration is unlikely to be an issue at the installation. The nature of the activity means that there are no significant sources of vibration on site. Therefore, vibration does not need to be included in the management plan.

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent or where not practicable to minimise the effects of noise and vibration.

Conditions 3.4.1 of the permit requires noise from the activities to be below that which could cause pollution outside the site. We are satisfied that this will be sufficiently

protective in conjunction with the measures described by the operator for minimising noise at the installation.

10.6. Global warming potential

The operator has confirmed that the Global Warming Potential (GWP) is reduced by capturing the biogas methane (that would be generated if disposed of to landfill or other treatment) and converting it to carbon dioxide.

The anaerobic digestion plant is designed to generate and utilise renewable energy. The energy generated by the biogas is collected off the digesters and upgraded to biomethane for injection into the grid, whilst a portion is used to power the on-site Combined Heat and Power (CHP) engines that generate electricity and heat for use around the site. Additional heat that is recovered can be used within the process such as for heating. In line with the site's management system, the operator carries out energy reviews on an annual basis to confirm the site's main energy uses, and to identify opportunities for energy efficiency improvements.

11. Impact on European Sites, SSSIs and non-statutory sites

The operator has used the relevant screening distance criteria to identify relevant protected conservation sites which could be at risk from the proposal. The screening distances used are 10km for Special Areas of Conservation (SAC), Special Protection Areas and Ramsar sites, and 2km for Sites of Special Scientific Interest, National Nature Reserves, Local Wildlife Sites (LWS) and Ancient Woodland (AW) We are in agreement with the screening distances used.

A full assessment of the variation application and its potential to affect the identified sites identified has been carried out as part of the permit determination process. European Sites, Sites of Special Scientific Interest (SSSI) and non-statutory conservation sites will be discussed separately below.

11.1 European Sites

The following European Sites are located within 10 km of the installation:

- Aberbargoed Grasslands SAC UK0030071

A Habitat Regulations Assessment (HRA) was completed to assess the potential to affect any of the sites identified. The project was screened for likelihood of significant effects and, taking account of the advice received from NRW's protected sites advisors, is considered not likely to have a significant effect on any European Site Network site (as documented in section 3.2 of OGN 200 Form 1, or section 5 if applicable). The full assessment is available to view on the public register, see here: [OGN 200 form 1b PAN-025512](#)

11.2 Sites of Special Scientific Interest (SSSI)

The following Sites of Special Scientific Interest (SSSI) are located within 2 km of the installation:

- Nelson Bog SSSI 0471 33WBQ

As a Section 28G Authority as defined in the Countryside Rights of Way Act 2000 permitting teams within NRW has a legal duty, under Section 28I of the Wildlife and Countryside Act 1981, to consult with NRW for formal advice when permitting an activity which has been determined to be likely to damage the features of a SSSI.

To determine if consultation is required, a SSSI Assessment was completed. The assessment concluded that the proposed permission is not likely to damage any of the flora, fauna or geological or physiological features which are of special interest.

A copy of the assessment is available to view on the public register, please see here: [OGN 231 Appendix 4 SSSI PAN-025512](#)

11.3 Non-statutory conservation sites

The following relevant non-statutory sites re located within 2 km of the installation:

- Cefn Gelligaer, West of Deri
- Pottery Road Slopes, East of Gelligaer
- Waun Rydd, Gelligaer
- Land South of Gelligaer Infants School, Gelligaer

- Wern Woodland, Nelson
- Brooklands Marsh, North of Nelson
- Tredomen Tip Ponds, Nelson
- Llancaich-Fawr Meadows, Llancaich
- Coed Gelliau'r-Gwellt, East of Llancaich
- Nant Caeach, North of Llancaich
- Coed Penallta and Railway Line, Ystrad Mynach
- Trelewis Wood
- Nant Caeach
- Plus 25 sites of ancient woodland

As per Section 11.1 and 11.2. above, which confirms that in light of the conclusions of an appropriate assessment and taking account of the advice received from NRW's protected sites advisors, it has been established that the project will not adversely affect the integrity of any European Site, we can also confirm therefore that the project is not likely to result in significant pollution any non-statutory conservation sites. To confirm, the long term PC is less than 100% of the long term environmental standard for protected conservation areas and the short term PC is less than 100% of the short term environmental standard for protected conservation areas.

Based upon the information in the application we are satisfied that there will be no evidence of adverse impact to the non-statutory conservation sites.

12 The Permit Conditions

12.1 Incorporating the variation

We have specified that the operator must operate the permit in accordance with descriptions in the application, including additional information received as part of the determination process.

These descriptions have been specified in the Operating Techniques table in the permit. We have specified that the operator must operate the permit in accordance with descriptions in the application. As the new CHP is an MCP, the site must adhere

to a number of additional operating techniques which we have included in the Operating Techniques table in the permit. We have specified that the operator must operate the permit in accordance with descriptions in the application

12.2 Medium Combustion Plant Conditions, Limits, Monitoring and Reporting

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 of the permit using the methods and to the frequencies specified in those tables. These monitoring requirements have been imposed in order to demonstrate compliance with the emissions limits in the permit.

For the new Medium Combustion Plant, that is an engine fuelled on biogas gas, we have decided that annual monitoring is appropriate, as per the existing CHP's. Therefore the monitoring requirements are as follows:

Pollutant	Emission Limit Value (mg/Nm³)	Monitoring Required
Oxides of Nitrogen (NO and NO ₂ expressed as NO ₂)	190	Within 4 months of the start of operations and then annually
Sulphur Dioxide (SO ₂)	40	Within 4 months of the start of operations and then annually
Carbon monoxide	No limit set	Within 4 months of the start of operations and then annually

Emission limit values are defined at a temperature of 273.15 Kelvin (K), a pressure of 101.3 kilo Pascals (kPa) and after correction for the water vapour content of the waste gases and at a standardised O₂ content of 15% for engines.

For emissions to air, the methods for periodic monitoring are in accordance with the Environment Agency's [Monitoring emissions to air, land and water \(MCERTS\)](https://www.gov.uk/guidance/monitoring-emissions-to-air-land-and-water-mcerts) - [GOV.UK](https://www.gov.uk) condition has been added to the permit stating the first monitoring measurements will be carried out within four months of the issue date of the permit or the date when the MCP is first put into operation, whichever is later.

12.3 Pre-operational Conditions

Based on the information in the application, we consider that we need to impose a pre-operational condition. Details of the pre-operational condition can be found in Annex 1.

12.4 Improvement Conditions

Based on the information on the application, we consider that we need to impose improvement conditions. Details of the improvement conditions used can be found at Annex 2. The inclusion of the improvement conditions has been discussed throughout the body of the text of this decision document.

12.5 Waste Types

The accepted waste types will not change following this variation..

12.6 Reporting

We have specified the reporting requirements in Schedule 4 of the Permit to ensure data is reported to enable timely review by Natural Resources Wales to ensure compliance with permit conditions and to monitor the efficiency of material use and waste recovery at the installation.

13 OPRA

The OPRA score has not been changed as a result of this variation and remains as 52. This will form the basis for ongoing subsistence fees.

ANNEX 1. Preoperational Conditions

Table S1.4 Pre-operational measures

Reference	Pre-operational measures
POM4	The operator shall not commence the new anaerobic digestion activity until they have submitted written confirmation to the regulator that the site is fully prepared for operation. This confirmation must demonstrate that: • All plant infrastructure (including digesters, storage tanks, gas handling systems, and associated equipment) has been installed and commissioned in accordance with approved design specifications. • Pollution prevention measures (such as secondary containment, drainage systems, and odour control) are in place and functional. • Confirmation that containment has been provided by a fully welded 2.00mm thick HDPE membrane laid below the site and extending up the perimeter bunds and wall such that the containment volume is achieved with an approximate freeboard of 400mm. • Safety systems (including emergency flare, methane detection and alarm systems, and fire prevention measures) are operational. • Management systems, staff training, and monitoring arrangements required by the permit are implemented. The regulator must confirm acceptance in writing before any waste is accepted or the activity begins

ANNEX 2. Improvement Conditions

Table S1.3 Improvement Programme Requirements

Reference	Requirement	Date
IC10	The Operator shall submit a Leak Detection and Repair (LDAR) Programme covering: • Biogas containment (digesters, storage, pipework, valves, seals). • Liquid feed systems (pipework, pumps, joints, reception tanks). The programme must outline inspection frequency, detection methods, repair timescales, and record-keeping, and demonstrate compliance with permit requirements to prevent fugitive emissions and leaks.	07/03/2027 unless otherwise agreed in writing with Natural Resources Wales
IC11	The operator shall carry out the mitigation measures as confirmed in Section 8 of the Noise Impact Assessment document reference 6921/NIA1_Rev1 submitted to NRW on 29/04/2026	07/03/2027 unless otherwise agreed in writing with Natural Resources Wales

Table S1.3 Improvement Programme Requirements

Reference	Requirement	Date
IC12	Following successful commissioning and establishment of routine steady operation of the CHP and anaerobic digestion plant, the Operator shall undertake noise monitoring at the nearest local receptors. This shall include: • A full noise monitoring survey and assessment meeting the BS4142:2014 standard; • 1/3rd octave and narrow band (FFT) measurements to identify any tonal elements or low frequency noise; and • Reference to the Welsh Government Noise and soundscape action plan 2018-2023. If the results of the assessment still indicate a significant adverse impact at receptors, further mitigation measures should be identified and put into place. Upon completion of the work, a written report shall be submitted to Natural Resources Wales for approval.	No more than 12 months from the date of commissioning of the CHP and anaerobic digestion plant, and following completion of IC11

ANNEX 3: Consultation Responses

1. Advertising and consultation on the Application

The application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. Responses to this consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex.

Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Public Health Wales	
Brief summary of issues raised:	Summary of action taken / how this has been covered
With regards to health impact of a fire and to minimise risks, the regulator must make sure that the operations are managed in accordance with current guidance.	The waste is wet and a FMPP is not required. This is in accordance with our Fire Prevention & Mitigation Plan Guidance – Waste Management Guidance Note 16 (GN 016).
Recommend for fugitive emissions, pest infestations, noise, vibrations and odours the regulator should ensure these measures are followed with best available techniques to	Operating techniques for fugitive emissions, pest, noise, vibrations and odours have been included in Table S1.2 of the varied permit. Permit condition 3.2.1 requires that

reduce the risk of identified hazards on the locale.	emissions of substances not controlled by emission limits (i.e. fugitive emissions) shall not cause pollution. Condition 3.2.2 requires that a management plan shall be developed if pollution is subsequently identified. Permit Condition 3.6.1 requires that the activities shall not give rise to the presence of pests, which are likely to cause pollution.
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2. Advertising and consultation on the draft decision

The application has been advertised and consulted upon in accordance with Natural Resources Wales Public Participation Statement. Responses to this consultation and how we have taken consultation responses into account in reaching our draft decision is summarised in this Annex:

No comments were received