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Natural Resources Wales permitting decisions

North West Biomass Limited Decision Document

Rev No1

Bespoke permit

The application number is: PAN-005139
The Applicant / Operator is: North West Biomass Limited
The Facility is located at: Unit B&C, Tir Llwyd Enterprise Park,
Kinmel Bay, Conwy

We have decided to grant the permit for North West Biomass Limited.

We consider in reaching that decision we have taken into account all relevant considerations and legal requirements and that the permit will ensure that the appropriate level of environmental protection is provided.

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 applicant's proposals.

Structure of this document

- Table of contents
- Key issues

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Key issues of the decision

1 Our decision

We have decided to grant a permit for North West Biomass Ltd.

We consider that, in reaching that decision, we have taken into account all relevant considerations and legal requirements and that the permit will ensure that a high level of protection is provided for the environment and human health.

This Application is to operate a regulated facility which is subject principally to the Specified Generator (SG) regulations (Schedule 25B) due to generating electricity, and EP Regulations Schedule 1, Part 2, Chapter 5, Section 5.1 Part B(a)(v), due to the incineration of waste wood (biomass).

The permit contains many conditions taken from our standard Environmental Permit template including the relevant Annexes. We developed these conditions in consultation with industry, having regard to the legal requirements of the Environmental Permitting Regulations (EPR) and other relevant legislation. This document does not therefore include an explanation for these standard conditions. Where they are included in the permit, we have considered the Application and accepted the details are sufficient and satisfactory to make the standard conditions appropriate.

2 How we reached our decision

2.1 Receipt of Application

The Application was accepted as duly made on **09/08/2019**. This means 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.

The Applicant made **no claim for commercial confidentiality**. We **have not** received information in relation to the Application that appears to be confidential in relation to any party.

2.2 Consultation on the Application

There was no requirement to carry out a consultation on the Application.

2.3 Requests for Further Information

No requests for further information were required.

3 The Legal Framework

The Permit will be granted, under Regulation **13** 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:

- plant as described in Schedule 25A and Schedule 25B covering the Medium Combustion Plant Directive (MCPD) and Specified Generator (SG) regulations respectively;

- plant as described in EP Regulations Schedule 1, Part 2, Chapter 5, Section 5.1 Part B(a)(v);
- 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.

We address the legal requirements directly where relevant in the body of this document. NRW is satisfied that this decision 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 granting the Permit a high level of protection will be delivered for the environment and human health through the operation of the Facility in accordance with the permit conditions. NRW is satisfied that this decision is compatible with its general purpose of pursuing the sustainable management of natural resources in relation to Wales and applying the principles of sustainable management of natural resources.

4 The Facility

4.1 Description of the Facility and related issues

4.1.1 The permitted activities

The Facility is subject to the EPR because it carries out an activity as described in Schedule 25B of the EPR, as well as EP Regulations Schedule 1, Part 2, Chapter 5, Section 5.1 Part B(a)(v):

- One or more small waste incineration plant that is also a Tranche B Specified Generator aggregated to <50MWth

A Generator means any combustion plant generating electricity. The regulations use the term 'specified generator' to encompass both individual generators and multiple generators at the same location or site, operated by the same Operator and for the same purpose. The "same purpose" means that having a different function does not stop individual generators being treated as part of a specified generator, e.g. generators with a capacity market agreement or providing a balancing service whether they are under the same contract or not would be classed as operating for the "same purpose" as they generate electricity. Similarly generators with different fuels or technologies are also classed as operating for the "same purpose".

The specified generator permit will apply to the site, rather than its constituent individual generators. All specified generators equal to or more than 1 MWth will also be Medium Combustion Plant (MCP), and must also meet the requirements of the MCP Directive, once these requirements apply from 01/01/2024.

Specified Generators are also divided into Tranche A and Tranche B sites, which will determine the relevant permitting date. A site is a Tranche A site if it meets the following criteria:

- It came into operation before 1 December 2016, or
- It is the subject of a capacity agreement arising from the 2014 or 2015 capacity auctions

A generator with a rated thermal input of less than 1MWth will be classed as Tranche A if:

- It is the subject of a capacity agreement arising from the 2014, 2015 or 2016 capacity auctions, or

- A FiT preliminary accreditation application was received by OfGEM before 1 December 2017, or
- Is the subject of an agreement to provide balancing services entered into before 31 October 2017.

Tranche B generators are all those that are not Tranche A.

North West Biomass Ltd (NWBL) operates a solid biomass combined heat and power (CHP) unit at its' Tir Llwyd site. The Uniconfort Boiler unit is utilised to provide heat to dry virgin woodchip to a desired moisture content in a belt dryer prior to transportation off-site for processing into wood pellets or briquettes. The plant has a thermal input capacity of 5.2 MWth and electrical output of 1 MWe. All the thermal energy is utilised within the manufacturing process along with ~300 kW of electrical energy. The remainder is available for export to the grid. The plant is expected to operate up to 8,000 hours per annum.

The plant was commissioned post 1st December 2016 and is considered a Tranche B Generator requiring an Environmental Permit from 1st January 2019. The plant was commissioned prior to 20th December 2018 and would be classified as an 'existing plant' requiring an Environmental Permit from 1st January 2024. The MCPD ELVs and / or permit requirements would apply at the appropriate date, i.e. from the 1st January 2025.

As the plant burns waste biomass, it is also subject to EP Regulations Schedule 1, Part 2, Chapter 5, Section 5.1 Part B(a)(v). The plant incinerates clean untreated waste wood with an individual unit capacity of 1 MW thermal input or greater, (~ 225 kg/hr of waste wood) but less than 3 tonnes per hour (~ 13.33 MW thermal input).

Note: the relationship between wood input and thermal capacity is based on a calorific

value of 16 KJ/kg and an 85% thermal efficiency, but actual values may be application specific. The waste material is 'clean untreated wood' and would be classified as Grade A wood waste European Waste Classification (EWC) codes would be 02 01 03 and 02 01 07.

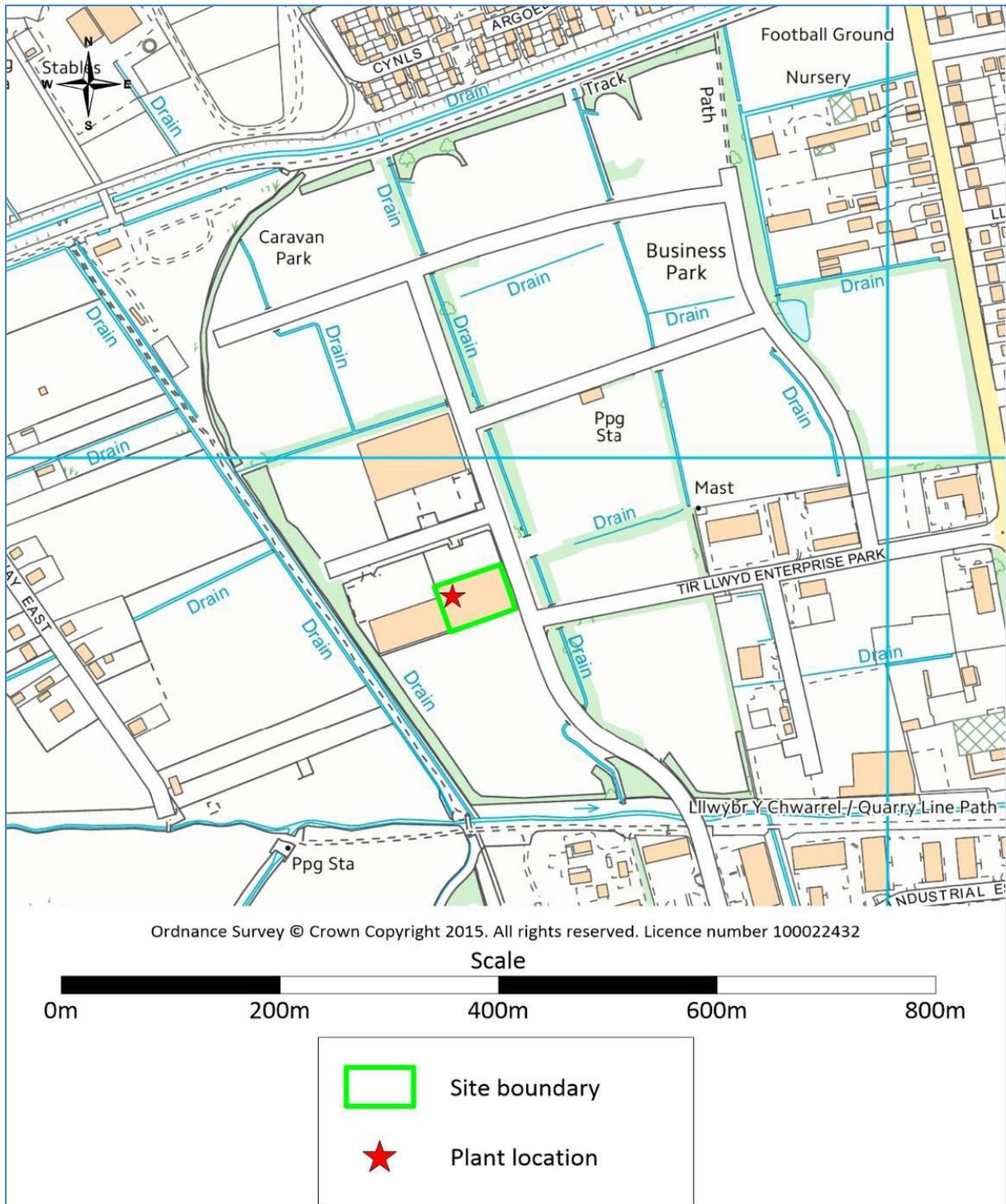
NWBL's permit will not include the storage of waste. The operator is intending to store up to 125 tonnes of waste wood at any one time prior to incineration.

4.1.2 The Site

The site was granted planning permission by Conwy County Borough Council (CCBC; reference number: 0/44590) for the installation of the CHP unit and wider facility on 7th March 2018 (later revision decision date of 16th May 2018). Initial commissioning of the facility commenced in October 2017 with final operation of the facility commencing in mid-2018.

The site is located within the Tir Llwyd Enterprise Park on the outskirts of Kinmel Bay, Conwy and consists of half of an existing industrial unit.

The site map and is outlined in Figure 1 below:



4.1.3 What the Facility does

NWBL operates a solid biomass combined heat and power (CHP) unit at its' Tir Llwyd site. The Uniconfort Boiler unit is utilised to provide heat to dry virgin woodchip to a desired moisture content in a belt dryer prior to transportation off-site for processing into wood pellets or briquettes.

The plant has a thermal input capacity of 5.2 MWth and electrical output of 1 MWe, but less than 3 tonnes per hour input.. All the thermal energy is utilised within the manufacturing process along with ~300 kW of electrical energy. The remainder is available for export to the grid.

4.1.4 Key Issues in the Determination

The key environmental and human health issues considered during the determination of this variation were:

- **Air quality**
 - **Oxides of Nitrogen (NO and NO2 expressed as NO2)**
 - **Carbon monoxide**
 - **Dust (Particulate Matter)**
 - **TVOC**
 - **Dark Smoke**

This will be discussed separately in this decision document.

4.2 Operation of the Facility – general issues

4.2.1 Administrative issues

The Applicant is the sole Operator of the Facility. We are satisfied that the Applicant is the person who will have control over the operation of the Facility if the Permit were to be granted; and that the Applicant will be able to operate the Facility so as to comply with the conditions included in the Permit, if issued.

Relevant Convictions

NRW's COLINS Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The operator satisfies the criteria in RGN 5 on Operator Competence.

Financial Provision

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.

4.2.2 Management

We are satisfied that appropriate management systems and management structures will be in place for this Facility, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

4.2.3 Operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes. The proposed techniques/ emission levels for priorities for

control are in line with the benchmark levels contained with MCERTS certification methods/techniques and TGN M5, and we consider them to represent appropriate techniques for the facility. These are specified in the Operating Techniques table in the permit.

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

5 Minimising the Facility's environmental impact

For this kind of regulated activity, the principal emissions are emissions to air. There are no permit conditions for water, land, energy efficiency, odour or noise although BAT does apply.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of air emissions from the Specified Generator/incinerator on human health and the environment and what measures we are requiring to ensure a high level of protection.

We have reviewed the operator's assessment of the environmental risk from the facility. The operator's risk assessment is satisfactory. The assessment shows that, applying the conservative criteria in our guidance on Environmental Risk Assessment, all emissions may be categorised as environmentally insignificant.

We will discuss the operators risk assessment in more detail as follows:

5.1 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 Applicant has assessed the Facility's potential emissions to air against the relevant air quality standards, and the potential impact upon human health. These assessments predict the potential effects on local air quality from the Facility's stack emission.

The air impact assessments and the dispersion modelling has been based on the facility operating up to 8000 hours per year. We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. The way in which the Applicant 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 Applicant's air impact assessment. The output from the model has then been used to inform further assessment of health impacts.

The closest residential properties are located about 290m to the west off Towyn Way East with both residential areas lying to the north and east, 430m and 480m distant respectively. Mossfield Caravan Park is situated about 345m to the northwest. A public footpath lies 95m west of the site and runs northwesterly. A second public footpath, Quarry Line Path, runs east-west 190m to the south of the site.

The predicted long-term PC from the stacks at relevant receptors peaks at 1.08 $\mu\text{g}/\text{m}^3$ (assuming 70% NO_x conversion) at Mossfield Caravan Park (R7). This is above the screening threshold of 1% of the AQAL at 2.7% indicating the need for further assessment through consideration of background concentrations. Given the nature of

the locality and absence of significant sources of NO₂ in the area, the predicted Defra background concentration is considered appropriate for this receptor. The resulting PEC, at 7.75 µg/m³, is substantially below the AQAL at 19.4%. With reference to the IAQM guidance the severity of impacts at this receptor are negligible (% change in concentration relative to AQAL is 2-5% and long-term average concentration at receptor is <75% of AQAL). Predicted PCs at other modelled residential receptors are similarly in the 2-5% range of the AQAL; resulting PECs at all other modelled residential receptors are however similarly substantially below 75% of the AQAL and the severity of impacts are all negligible.

The predicted short-term NO₂ PC peaks at relevant receptors at 15.97 µg/m³ (assuming 35% of modelled values) at the footpath to the west of the site (R15). At 8% of the short-term AQAL this is below the screening threshold of 10% and as such the severity of impact is considered negligible. The maximum short-term PC at a residential receptor is lower at 8.46 µg/m³ at receptor R1, an isolated residential property on Towyn Way East; at 4.23% of the AQAL this has a negligible severity of impact.

All predicted impacts from NO₂ at residential and leisure receptors are negligible. The overall effect with regards to air emissions and human health receptors is therefore considered to be 'not significant'.

With regards to Particulate Matter, the modelling predicts the potential severity impacts due to increases in long-term and short-term concentrations of PM₁₀ and PM_{2.5} at residential and leisure receptors to be negligible.

5.2 Impact on Habitats sites, SSSIs, non-statutory conservation sites etc

There are no SSSIs within 2km of the site:

In conclusion, the impact on airborne NO_x concentrations, and acid and nitrogen deposition at designated SSSI's was determined to be insignificant.

5.3 European Sites

The following Natura 2000 sites are located within the relevant screening distance (10.0km) of the main site emission point to air:

- Elwy Valley Woods SAC (Site Code UK0030146) – approximately 7.5 km to the south/south east of the facility.
- The Dee Estuary SAC/SPA/RAMSAR (Site Code UK0030131) – approximately 9.7 km to the east/north east of the facility.
- Liverpool Bay SPA (Site Code UK9020294) – approximately 2.0 km to the north of the facility.

A FORM 1 has been completed with regards to a Habitats Regulations Assessment (HRA). This is required because there is a conceivable impact pathway to the Natura 2000 sites listed above.

Detailed air quality modelling has been carried out with respect to the potential impact of air emissions from this Specified Generator facility on habitat receptors. A summary of maximum predicted ground level concentrations of NO_x at the identified sensitive habitat sites has been carried out. The maximum predicted ground level concentrations of NO_x have been compared with relevant critical level thresholds above which damage may be sustained to sensitive plants and animals. For European sites within 10.0km, an assessment of deposition impacts has also been completed.

Critical loads refer to the threshold beyond which deposition of pollutants to water or land results in measurable damage to vegetation and habitats. Predicted concentrations of NO_x can be used to determine nutrient nitrogen deposition rates, using typical deposition velocities. The maximum predicted deposition rates have been with site specific critical loads obtained from APIS.

The significance criteria provided by the EA/NRW states that for SACs the impact can be considered to be insignificant if the long-term PC is less than 1% of the annual average Critical Level and 10% of the 24-hour average critical level.

The long-term and short-term NO_x PCs at the nearest point of all in-scope European habitat sites (listed above) are substantially below the relevant screening threshold. No further assessment is therefore required. The impact of the CHP Plant at NWBL on the designated ecological sites with regards to airborne NO_x concentrations is therefore considered to be insignificant.

For maximum predicted nutrient nitrogen & acid deposition rates at the ecological sites, the results indicated the PC is below 1% of the lower critical load and therefore impacts are considered insignificant, irrespective of background concentrations. No further assessment is required.

It should be noted for Liverpool Bay SPA information from APIS states this broad habitat is not sensitive to eutrophication or to acidification, and no negative impact on either species is expected due to any impacts on the species' broad habitat. On the basis of this information from APIS, further detailed assessment of potential impacts on ecological receptors is not considered necessary.

This project complies with NRW agreed criteria for ruling out significant effects without conducting a project-specific LSE test. Therefore this project is considered not likely to have a significant effect on any Natura 2000 sites, either alone or in-combination with other plans and projects.

Assessment of Likely Significant Effect:

The project has been screened for likelihood of significant effects and, taking account of the advice received from protected sites advisors, is considered not likely to have a significant effect on any Natura 2000/site (As documented in section 3.2 of OGN 200 form 1, or section 5 if applicable).

Appropriate assessment:

In light of the conclusions of an appropriate assessment, and taking account of the advice received from protected sites advisors, it has been established that the project will not adversely affect the integrity of any Natura 2000 site, taking into account any conditions or restrictions as applicable, either alone or in-combination with other plans and projects. (As documented in section 4 of OGN 200 form 1, and section 5 if applicable).

HRA Overall conclusion:

Potential impacts due to NO₂, PM₁₀, and PM_{2.5} are predicted to be negligible at all receptors with regards to both long-term and short-term air quality objectives with respect to human health.

An assessment of the impact on nearby sensitive ecological sites has also been completed. The impact on the long-term and short-term NO_x PCs at the nearest point

of all in-scope European habitat sites (listed above) are substantially below the relevant screening threshold. The impact of the CHP Plant at NWBL on the designated ecological sites with regards to airborne NOx concentrations is therefore considered to be insignificant.

For maximum predicted nutrient nitrogen & acid deposition rates at the ecological sites, the results indicated the PC is below 1% of the lower critical load and therefore impacts are considered insignificant, irrespective of background concentrations. No further assessment is required.

In light of the above conclusions of the appropriate assessment, it has not been ascertained that the project will not adversely affect the integrity of any Natura 2000 site, as documented in section 4 of OGN 200 form 1, and section 5 is applicable.

6 Setting ELVs and other Permit conditions

We have decided that emission limits should be set for the parameters listed in the permit. Emissions Limit Values (ELVs) are in line with those set out in the MCP Directive, Specified Generator Regulations, and NRW's Environmental Permitting Technical Note 5/1(18).

6.1 Monitoring

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, as per the ELV and monitoring

frequency requirements specified within the EPR Schedule 25B Regulations and NRW's Environmental Permitting Technical Note 5/1(18).

The Specified Generator requirements provides an Emissions Limit Value (ELV) for NO₂ only; the CHP Biomass Boiler also forms an MCP, although the plant forms an 'existing' MCP, and as such the additional MCP ELVs and requirements do not apply until 2025. MCP ELVs will be applicable to SO₂ and Particulates (as well as NO_x); there will also be a requirement for CO monitoring, although there will be no ELV for CO. The CHP Biomass Boiler also forms a small waste incineration plant, which is listed as an installation activity in the EP Regulations Schedule 1, Part 2, Chapter 5, Section 5.1 Part B(a)(v), and subject to NRW's Environmental Permitting Technical Note 5/1(18).

For a Tranche B Specified Generator between 1-50MWth, that is a boiler fuelled on solid biomass (virgin woodchip), and also a small waste incineration plant subject to EP Regulations Schedule 1, Part 2, Chapter 5, Section 5.1 Part B(a)(v), and that is >5MWth but less than 3 tonnes per hour input., the monitoring requirements are as follows:

Pollutant	Type of Specified Generator	Fuel Type	Emission Limit Value (mg/Nm³)	Monitoring Required	Monitoring Standard
NO _x	CHP Boiler	Solid biomass	475	Periodic (one hour) – annually	MCERTS BS EN 14792
Carbon monoxide	CHP Boiler	Solid biomass	225	Periodic (one hour) – annually	MCERTS BS EN 15058

Dust (Particulate Matter)	CHP Boiler	Solid biomass	30	Periodic (one hour) – annually	MCERTS BS EN 13284-1
TVOC	CHP Boiler	Solid biomass	30	Periodic (one hour) – annually	MCERTS BS EN 12619
Dark Smoke	CHP Boiler	Solid biomass	N/A (No visible dark smoke)	Daily when in operation	Ringelmann Chart Shade 1

Emission limit values are defined at a temperature of 273,15 K, a pressure of 101,3 kPa and after correction for the water vapour content of the waste gases and at a standardised O₂ content of 6% for solid fuel fired boilers.

For emissions to air, the methods for continuous and periodic monitoring are in accordance with the Environment Agency's Technical Guidance Note M5 for monitoring of stack gas emissions from medium combustion plants and specified generators, and in accordance with NRW's Environmental Permitting Technical Note 5/1(18).

Based on the information in the Application and the requirements set in the conditions of the permit we are satisfied that the monitoring techniques, personnel and equipment employed by the Operator will have MCERTS certification/MCERTS accreditation as appropriate.

6.2 Other Permit Conditions

As a Specified Generator, the facility must adhere to the following operating techniques for SG.

As a Specified Generator (SG), these are:

- (a) Each generator must be operated in accordance with the manufacturer's instructions and records must be made and retained to demonstrate this.
- (b) The operator must keep periods of start-up and shut down of the generators as short as possible
- (c) There must be no persistent emission of 'dark smoke' as defined in section 3(1) of the Clean Air Act 1993.
- (d) Where secondary abatement is required to ensure compliance with the NO_x ELV it must be met within 10 minutes from when the generator commences operation or within 20 minutes when the generator was a Tranche A and is now a Tranche B generator.
- (e) The stack must be vertical and unimpeded by cowls or caps.

6.3 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.

7 Specified Generator Charges and Subsistence Fees

The type of application regarding Specified Generators will have an associated charge. The Specified Generator application type will also form the basis for ongoing subsistence fee's. More information on this can be found in our charging scheme on our website.