Natural Resources Wales permitting decisions

JCG Hale Limited Milland Road Biomass Boiler Decision Document

Rev No1

Complex bespoke permit

The application number is: PAN-005664

The Applicant / Operator is: JCG Hale Limited

The Facility is located at: Milland Road Biomass Boiler, JCG Buildings, Milland Road, Canal Side, Neath, SA11 1NJ

We have decided to grant the permit for Milland Road Biomass Boiler operated by JCG Hale 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
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Key issues of the decision

1 Our decision

We have decided to grant a permit for Milland Road Biomass.

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:

- Medium Combustion Plant Directive (MCPD) and Specified Generator (SG) regulations (EPR Schedule 25A & Schedule 25B respectively)
- Schedule 1, Part 2, Chapter 5, Section 5.1, Part B, (a) (v) of the Enviromental Permittings Regulations (England and Wales) 2016

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 **18 November 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 this application. The MCP/SG is not located within an Air Quality Management Area.

2.3 Requests for Further Information

In order for us to be able to consider the Application duly made, we needed more information. We requested further information relating to waste acceptance procedures, air dispersion modelling and emission points on the site plan. Upon receipt of this information we were able to consider the application Duly Made.

A copy of the information notice and e-mails requesting further information were placed on our public register as were the responses when received.

Two contradictions in the application were found and clarified by the operator. This was done directly via e-mail, the emails requesting clarification were placed on our Document Management System (DMS) as were the responses when received.

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 by 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 Schedules 25A and 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 and new Medium Combustion Plant aggregated to <50MWth at a specified location

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.

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

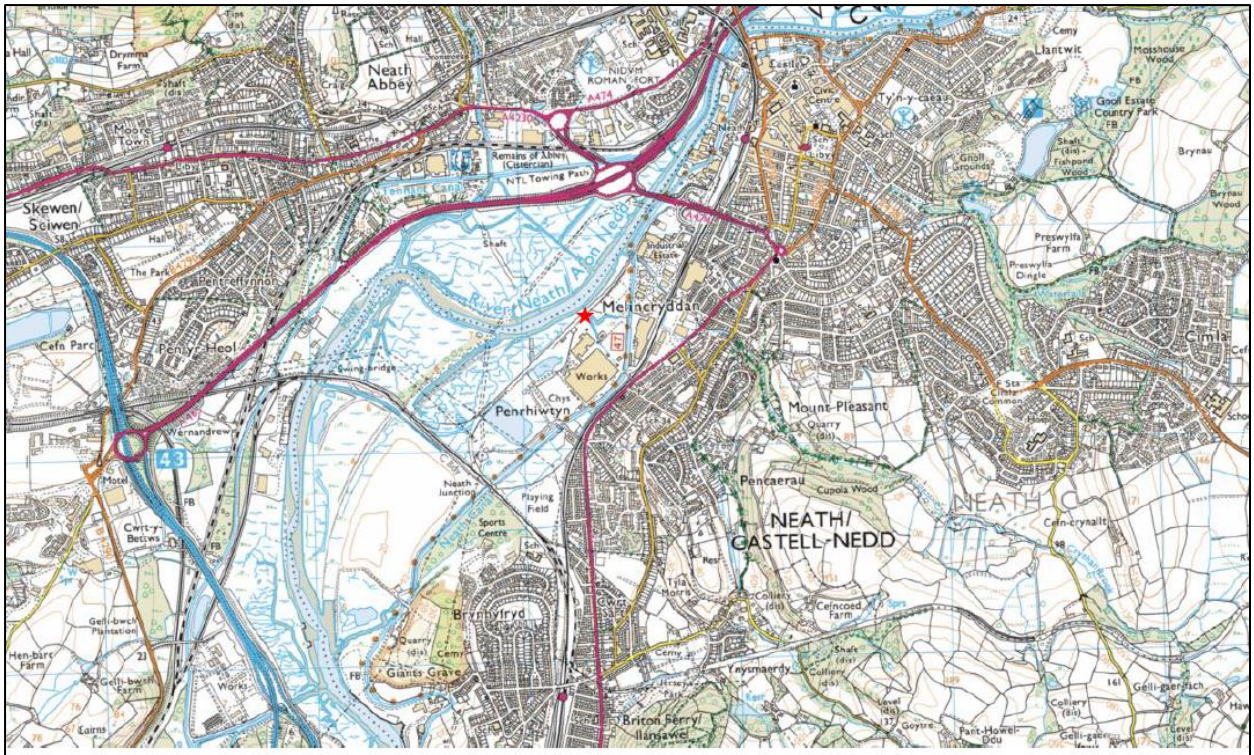
• Is the subject of an agreement to provide balancing services entered into before 31 October 2017.
Tranche B generators are all those that are not Tranche A.

The plant is considered a new MCP as it will be put into operation after December 2018. The plant is considered a Trance B Specified Generator. The plant is also subject to EP Regulations Schedule 1, Part 2, Chapter 5, Section 5.1 Part B(a)(v) as the plant incinerates clean untreated waste wood with an individual 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). The relevant compliance date with MCPD is date of permit issue.

The 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 Neath Port Talbot County Borough Council on 03 October 2019, reference: P2017/5082. The proposed installation site is shown with a red star in the map below. JCG Hale Limited proposes to install the biomass boiler at it's new construction and timber-processing site at Unit 2 Milland Road Industrial Estate in Neath. The biomass boiler will be housed in an existing building which will be modified to accommodate the boiler and all associated ancillary equipment. The site is located on the Milland Road Industrial Estate which is situated on the north-west outskirts of Neath, close to the suburb of Penrhiwtyn. The River Neath is situated to the north and the Neath canal situated to the south, with the site sitting in between both waterways. To the south and east of the site is mostly a residential and commercial area, to the north and west the immediate vicinity is mainly woodland and wetland.



Ordnance Survey on behalf of the Controller of Her Majesty's Stationary Office
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The operator has provided a plan which we consider is satisfactory, showing the extent of the site of the facility including one emission point. The site plan below shows the installation boundary in green with the one emission point being the biomass boiler stack indicated by a red dot. A plan is included in the permit and the operator is required to carry on the permitted activities within the site boundary.

4.1.3 What the Facility does

The installation will incorporate a Kriger 2.38 MW thermal input energy biomass boiler which will supply approximately 2.0 MW thermal output energy in the form of 125 ºC hot water for use within the site. The facility will also incorporate an Organic Rankine Cycle (ORC) electrical generator that will generate approximately 110 kW renewable elelctricity for use on-site and for export to the local distribution network. The biomass boiler will use clean chipped wood from a mixture of sources as fuel:

- Virgin timber off-cuts from on-site timber processing activites by the operator
- Virgin timber off-cuts from off-site timber processing activities by the operator
- Clean waste wood sourced from third party wood recycling operations

All wood is exempt under Chapter IV of the Indsutrial Emissions Directive. No wood other than the European Waste Codes stated in Table 4.1 of Process Guidance Note 5/1 (18) will be accepted as fuel for the biomass boiler. The operator has demonstrated robust waste acceptance procedures are in place and will not store over 125 tonnes of waste wood at any one time. The fuel feed-rate will be approximately 525 kg/hr and

approximately 4200 tonnes of clean wood will be utilised as fuel per annum. The biomass boiler has been designed in accordance with Best Available Technique requirements to ensure energy recovery efficiency is optimised. The biomass boiler will be equipped with abatement and control facilities to minimise environmental impact including a high efficiency ceramic filter to control emissions of Particulate Matter. Combustion air staging techniques and flue gas recirculation will be employed to minimise NOx emissions. CO and VOCs emissions will be minimised by the monitoring and control systems employed to ensure combustion efficiency is maximised at all times. There will be no emissions to land or water and air emissions will be discharged via a 16-metre high chimney which has been designed to aid effective dispersion under the most adverse weather conditions. Bottom ash will be produced during combustion, the biomass boiler has been designed to BAT and therefore there has an automatic de-ashing system. The bottom ash will be stored in sealed containers awaiting collection. Fly ash will also be collected on the ceramic filter and this will be stored separately from the bottom ash in sealed containers awaiting collection. Total ash production is expected to be 250 tonnes per annum, with approximately 90 % as bottom ash. Cleaning of the system may result in ash quench water being produced, this will be syphoned into a sealed container and sent to a third party for waste water treatment. The biomass boiler is expected to operate for no more than 7000 hours per annum.

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 (NOx)**
  - **Particulate Matter (Dust)**
  - **Carbon Monoxide (CO)**
  - **Total Volatile Organic Compounds (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. The operator submitted a comprehensive Environmental Management System and have stated they are hoping to achieve ISO14001 accreditation. The management techniques used by the operator have been reviewed and compared to the relevant guidance note: EPR Technical Note 5/1 (18). The proposed techniques are in line with those outlined in the technical note.

4.2.3 Operating techniques

We have reviewed all the techniques used by the operator and compared these with the relevant guidance note: EPR Technical Note 5/1 (18) and relevant sections of EPR Technical Note 1/1 (18). The proposed techniques and management systems are in line with the Technical Notes. The proposed techniques and emission levels for priorities for control are in line with the benchmark levels contained in 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 or noise although BAT does apply but only to air emissions. There are permit conditions for odour, although they are limited.

The next sections of this document explain how we have approached the critical issue of assessing the likely impact of air emissions from the MCP/SG 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 Installation'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 biomass boiler operating up to 7000 hours per year at the relevant long-term or short-term emission limit values, i.e. the maximum permitted emission rate. We are in agreement with this approach. The assumptions underpinning the model have been checked and are reasonably precautionary. The output from the model has then been used to inform further assessment of health impacts. The applicant has submitted modelling for NOx, CO and Particulate Matter emissions. An assumption that 50 % NOx to NO_2 conversion for short term assessment and 100 % for long term assessment has been made, this is in accordance with Environment Agency guidance.

The closest residential receptors are located approximately 260 m south-east of the site on Mile End Road. There is a towing path that runs along the Neath Canal situated approximately 180 m east and south-east of the site. There are a number of other tracks situated around the site however they are not marked as public rights of way. The prevailing wind direction is generally from a westerly south-westerly direction.

Oxides of Nitrogen (NOx) emissions

The applicant has modelled process contributions (PC) and predicted environmental concentrations (PEC) at the point of maximum impact as a screening method for the human health assessment, this is a location within the installation boundary. The annual PC at the point of maximum impact is 28.3 % of the Air Quality Strategy (AQS) objective level for annual mean NO_2 concentrations (40 µg m^{-3}), therefore in accordance with NRW guidance it could not be screened out at this stage. The annual PEC at the point of maximum impact is 56.0 % of the AQS therefore in accordance with NRW guidance can be screened out and is considered insignificant. The hourly PC at the point of maximum impact is 28.6 % of the AQS objective level for hourly mean NO_2 concentrations (200 µg m^{-3}), therefore in accordance with NRW guidance it could not be screened out at this stage. The hourly PEC at the point of maximum

impact is 39.7 % of the AQS minus twice the long-term background therefore in accordance with NRW guidance could not be screened out at that stage either. It should be highlighted that this is at the site of maximum impact at a location within the installation boundary.

The applicant further modelled the PC and PEC at a number of sensitive receptor locations, the highest annual PC is 0.63 µg m^{-3} equivalent to 1.6 % of the annual AQS, the PEC is well below 70 % of the AQS minus twice the long-term background therefore in accordance with NRW guidance can be screened out at this stage and is considered insignificant. The highest hourly PC is 6.4 % of the hourly AQS therefore in accordance with NRW guidance it can be screened out at this stage and is considered insignificant.

The results indicate that at all receptor locations within the study area the relevant air quality standard for annual and hourly NO_2 concentrations could be screened out and considered insignificant in accordance with NRW guidance.

Particulate Matter (PM) emissions

The applicant has modelled process contributions (PC) at the point of maximum impact as a screening method for the human health assessment. The annual PC at the point of maximum impact is 0.6 % of the Air Quality Strategy (AQS) objective level for annual mean PM_{10} concentrations (40 µg m^{-3}), therefore in accordance with NRW guidance it could be screened out at this stage and considered insignificant. The daily PC at the point of maximum impact is 0.8 % of the AQS objective level for daily mean PM_{10} concentrations (50 µg m^{-3}), therefore in accordance with NRW guidance it could be screened out at this stage and considered insignificant. It is important to highlight that this particulate matter emissions are considered insignificant at the point of maximum impact, a location situated within the installation boundary therefore the impact at areas outside the installation boundary can be confidently assumed as insignificant. $PM_{2.5}$ has similar dispersion characteristics to PM_{10} therefore on this basis the $PM_{2.5}$ emissions can be assumed to be insignificant.

Carbon Monoxide (CO) emissions

The applicant has modelled process contributions (PC) at the point of maximum impact as a screening method for the human health assessment. The annual PC at the point of maximum impact is 5.0 µg m^{-3} and there is no AQS objective value for annual CO concentration. The 8 hour rolling average PC at the point of maximum impact is 0.45 % of the AQS objective level for 8 hour rolling average CO concentrations (10, 000 µg m^{-3}), therefore in accordance with NRW guidance it can be screened out at this stage and considered insignificant. It is important to highlight that CO emissions are considered insignificant at the point of maximum impact, a location situated within the installation boundary therefore the impact at areas outside the installation boundary can be confidently assumed as insignificant.

Total Volatile Organic Compound (TVOC) emissions

Emsisions of TVOC are expected to be negligible as there are monitoring and control systems incorporated into the biomass boiler to ensure combustion efficiency is maximised at all times and complete combustion occurs. TVOC emissions are maximised when incomplete combustion occurs, this is not expected.

Dark Smoke

Dark smoke is not expected to be a key issue for this operation. Dark smoke emissions are increased when incomplete combustion occurs, complete combustion will be ensured by a number of monitoring and control systems incorporated into the biomass boiler.

All long term and short term impacts regarding the human health assessment are predicted to be below limit values at receptor locations where the Air Quality Directive states that they must be applied.

With regards to the impacts regarding ecological receptors, this will be discussed in more detail below.

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

There are no SSSIs within 2 km of the site.

5.3 European Sites

There is one Natura 2000 site located within the relevant screening distance (10 km) of the site:

- Crymlyn Bog (SAC: UK0012885) (RAMSAR: UK14006) located approximately 3.7 km south/south-west of the site.

An OGN200 Form 1 has been completed with regards to a Habitats Regulations Asessment (HRA). This is required because there is a conceivable impact pathway to the Natura 2000 site.

The applicant completed detailed air quality modelling with respect to the potential impact of NOx emissions on habitat receptors. The applicant included all SSSIs within 10 km and a number of other non-designated habitat sites within their assessment. Therefore they went above and beyond the requirements for habitat screening.

The maximum predicted ground level concentrations of NOx have been compared to the relevant critical level thresholds, above which damage may be sustained to sensitive plants and animals. The impact of Nitrogen deposition and Acid deposition using predicted concentrations of NOx was assessed by comparison to site specific critical load values obtained from APIS.

The significance criteria provided by the Environment Agency states that for SACs and Ramsar sites the impact can be considered to be insignificant if the long term process contribution (PC) is less than 1 % of the long term critical level and the short term PC is less than 10 % of the short term critical level. Regarding deposition, the impact can be considered to be insignificant if the process contribution is less than 1 % of the minimum critical load.

The impact of the operation on the ecological site with regards to airborne NOx concentrations is considered to be insignificant as the short and long term PCs are both less than 1 % of the relevant critical levels. The impact of the operation on the ecological site with regards to nitrogen deposition and acid deposition is considered to be insignificant as the process contribution is less than 1 % of the relevant critical load.

In accordance with OGN200, an in-combination assessment was completed and found no significant in-combination effect. 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/Ramsar 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/Ramsar 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:

An assessment of the impact on nearby sensitive ecological sites has been completed. The impact on annual and hourly airborne NOx concentrations, nitrogen deposition and acid deposition at the one statutory European site was determined to be insignificant. There are no SSSIs within 2 km of the site.

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, Schedule 25B of EPR and EPR 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 MCP Diective and EPR Schedule 25B Regulations and EPR Technical Note 5/1 (18).

For a combined Tranche B Specified Generator and new Medium Combustion Plant and Section 5.1 Part B biomass boiler the monitoring requirements are as follows:

Pollutant	**Type of plant**	**Emission Limit Value (mg/Nm^3)**	**Monitoring Required**
Carbon Monoxide	All plant	225	Annual Extractive
Dust	New plant	50	Annual Extractive
Oxides of Nitrogen	Specified Generator	475	Annual Extractive
TVOC	All plant	30	Annual Extractive
Smoke	All plant	Ringlemann Shade 1	Daily when in operation

*380 mg/Nm3 for dual fuel engines in gas mode.

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 O_2 content of 6 % for solid biomass boilers.

For emissions to air, the methods for continuous and periodic monitoring are in accordance with the Environment Agency's Techical Guidance Note M5 for monitoring of stack gas emissions from medium combustion plants and specified generators.

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 either MCERTS certification or MCERTS accreditation as appropriate.

6.2 Other Permit Conditions

As a combined Specified Generator/Medium Combustion Plant and Section 5.1 Part B activity, the facility must adhere to the following operating techniques for MCP, SG and Section 5.1 Part B (a)(v).

As a Medium Combustion Plant (MCP) these are:

(a) Each MCP 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 each MCP 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.

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 NOx 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.

As a Schedule 1, Part 2, Chapter 5, Section 5.1, Part B, (a) (v) activity of the Environmental Permittings Regulations (England and Wales) 2016 these are:

(a) Unless otherwise agreed in writing, the combustion plant must comply with the requirements of Environmental Permitting Technical Note 5/1 (18), which will serve as statutory guidance under Regulation 65 of The Environmental Permitting Regulations 2016 once finalised.

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 MCPD/SG Charges and Subsistence Fees

The type of application regarding MCPD and SG will have an associated charge. The MCPD/SG application type will also form the basis for ongoing subsistence fees. More information on this can be found in our charging scheme on our website.