Cyfoeth Naturiol Cymru
Natural Resources Wales

Natural Resources Wales permitting decisions

Drax Power Limited - Abergelli OCGT Plant

Decision Document

Contents

Glossary of acronyms used in this document

(Please note that this glossary is standard for our decision documents and therefore not all these acronyms are necessarily used in this document.)

BAT	Best Available Technique(s)
BAT-AEL	BAT Associated Emission Level
BREF	BAT Reference Note
CEM	Continuous emissions monitor
CHP	Combined heat and power
CROW	Countryside and rights of way Act 2000
DAA	Directly associated activity – Additional activities necessary to be carried out to allow the principal activity to be carried out
DD	Decision document
EAL	Environmental assessment level
ELV	Emission limit value
EMAS	EU Eco Management and Audit Scheme
EMS	Environmental Management System
EPR	Environmental Permitting (England and Wales) Regulations 2016
EQS	Environmental quality standard
EU-EQS	European Union Environmental Quality Standard
GWP	Global Warming Potential
IED	Industrial Emissions Directive (2010/75/EU)
LHB	Local Health Board
NOx	Oxides of nitrogen (NO plus NO_2 expressed as NO_2)
OPRA	Operator Performance Risk Appraisal
PC	Process Contribution
PEC	Predicted Environmental Concentration
PHW	Public Health Wales
PPS	Public participation statement
PR	Public register
RGS	Regulatory Guidance Series
SAC	Special Area of Conservation
SCR	Selective catalytic reduction
SGN	Sector guidance note

SPA(s)	Special Protection Area(s)
SSSI(s)	Site(s) of Special Scientific Interest
TGN	Technical guidance note
WHO	World Health Organisation

1. Our decision

We have decided to grant the Permit for the Abergelli OCGT Plant, operated by Drax Power Limited.

The Permit number is EPR/BB3098FK

We consider that, in reaching this 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.

2. 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.

This document should be read in conjunction with the application & supporting information and the Permit.

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

3. Key issues of the decision

3.1 What the Installation does

The Installation will operate as an Open Cycle Gas Turbine (OCGT) peaking plant and will burn natural gas to generate approximately 299MW of electrical energy. Improvement Condition 4 (IC4) requires the Operator to submit a report which confirms the actual net rated thermal input and net rated electrical output for the LCP.

The natural gas will be supplied to the Installation by a new gas pipeline connected to the existing National Grid Gas National Transmission System which is approximately 1km away from the Installation.

Electricity generated by the Installation will then be exported to the National Grid National Transmission System by a newly laid underground cable to the nearby Swansea North Substation.

By operating as a peaking plant, the Installation will only operate for 2250 hours a year (1500 hours over a rolling 5-year average). By operating in this way, the Installation will be used to balance the grid during times of high demand, in addition it will be used to 'top-up' the grid during times that other power generating technology is under producing.

There is 1 emergency diesel generator that will provide energy in the case of plant failure, this will enable the plant to shut-down safely. There is also 1 diesel powered fire pump on-site. Both units will fall under the Medium Combustion Plant Directive (MCPD). Excluded Generators are generators that are exempt from Schedule 25B. As the generators are part of a Chapter III IED installation, BAT applies in this instance and therefore the generator is classed as an 'excluded generator'. Further to this as it is an emergency backup generator that is not tested for more than 50 hours a year, it is also excluded.

Back-up Generator means a generator that is operated for the sole purpose of providing power at a site during an on-site emergency. Balancing Services, and Demand Side Response operations, whether procured or not, such as Triad Avoidance or Fast Frequency Response are not on-site emergencies and a generator that provides these services is not excluded.

Even though the generators are excluded, the units are listed in the Permit in both the activities table and as emission sources. No ELV's have been set.

3.2 Remote Operation

The Installation will be run from the main control room located at Drax power station in Selby, North Yorkshire. The control room is manned 24 hours per day, 7 days per week. A small number of people will be employed locally, to monitor and check the equipment and infrastructure on-site, ensuring that it is operational, safe and secure. The Installation will be equipped with modern equipment (SCADA type system), this gives operators in the control accurate, up-to-date information on the status of the plant. The operators in the control room will be able to monitor the site remotely and react to any alarms, situations that occur at the Installation.

Issues like fire and gas leaks can be detected by the on-site equipment and alarms will alert the operators in the control room to the situation and they will be able to react accordingly taking the appropriate action. More specifically, the Installation's fire detection and gas leak detection system will be designed in accordance with the relevant British Standard, this will incorporate local automatic detection linked to the control room at Drax's main power station.

Any leaks of diesel fuel will be detected by automatic sensors and an alarm will sound in the main Drax control room, operators will then contact the fire service for a local response. Any leakages of oil on-site would be dealt with locally, the alarm would sound and trigger an automatic plant shutdown, the alarm would also sound in the main Drax control room, where operators could contact the fire service if necessary.

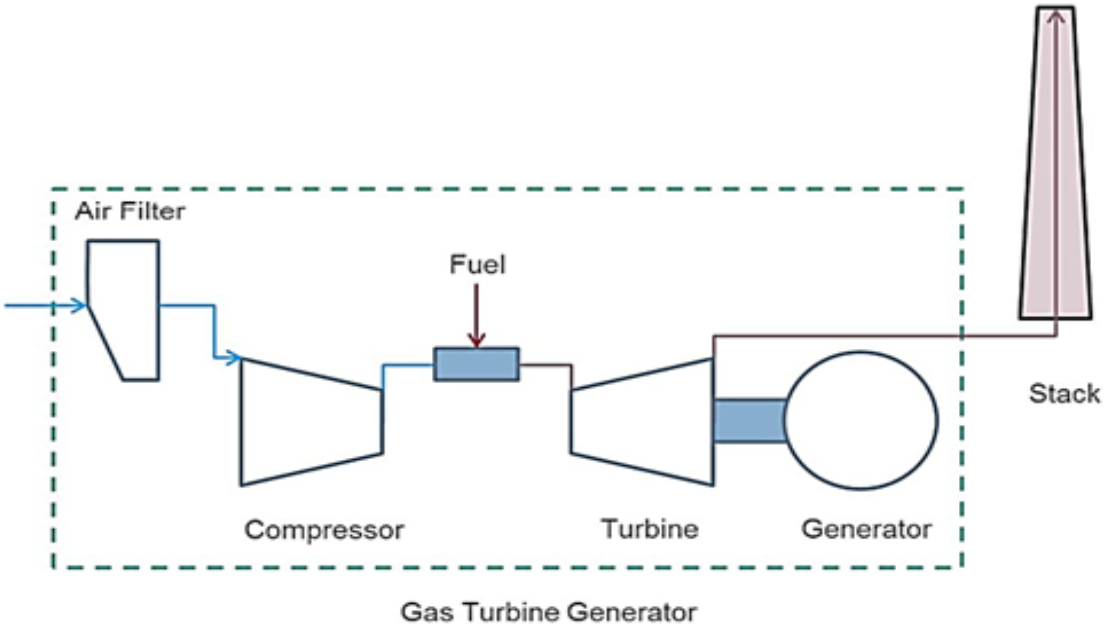
All the drive belts on the cooling system will utilise heat detectors, if these are triggered it would set off the alarm and trigger an automatic plant shut-down.

The Installation will also incorporate pressure and temperature sensors on the compressor and generator, this will alert control room operators of any gas leak or plant failure on the Installation. A plant shut-down would be initiated and in the event of a fire an automatic fire suppression system would be initiated.

In terms of site security, the Installation will have an outer and inner perimeter fence. The inner security fence will have an electrified, 2.4m welded wire mesh fence fitted with anti-spread, and short detection. The site will also have an advanced CCTV system, including motion sensors and lighting. The Installation will be monitored 24/7 from the Drax control room, in the event of an attempted security breach, a police response can be initiated. Due to the nature of the plant any police response will be given a high priority. Having considered the information submitted in the Application, we are satisfied that appropriate infrastructure and procedures will be in place to ensure that the site remains secure.

3.3 Process Flow Diagram

The process is illustrated in the following simplified diagram:



Improvement Condition 5 (IC5) requires the Operator to provide reports to NRW relating to the commissioning of the Installation. Summaries of the environmental performance of the plant against design specs will be submitted as well as actual performance of the plant against the Permit conditions. Pre-operational Condition 2 (PO2), requires the Operator to provide written commissioning plans, including timescales, this includes expected emissions to the environment during the different stages of commissioning.

3.4 Key Issues in the Determination

The key issues arising during this determination were;

- Emissions to air
- Best Available Techniques
- Noise

We therefore describe how we determined these issues in more detail in this document.

3.5 Consultation on the Application

The consultation requirements were identified and implemented. The decision was taken in accordance with our Public Participation Statement and our Working Together Agreements.

We advertised receipt of the Application by a notice placed on our website, which contained all the information required by the EPR and IED, including telling people where and when they could see a copy of the Application. This ran for 4 weeks from 1st June 2018 until the 29th June 2018. We placed copies of the application on our Public Register and anyone wishing to see these documents could do so.

At the same time, we sent copies of the Application to the following bodies, which includes those with whom we have “Working Together Agreements”.

- City & County of Swansea Council (Environmental Protection Department)
- City & County of Swansea Council (Planning Department)
- Public Health Wales
- Mid and West Fire and Rescue Service
- Health and Safety Executive
- National Grid

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

Further details along with 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 final determination.

3.6 Requests for further information

The application was submitted on 22nd May 2018 and was duly made on 31st May 2018. As is common with these types of application, further information was required to enable final determination. We issued two 'Notices requiring further information' (Schedule 5 Notice) on the 14th June 2018 and 3rd August 2018, requesting further information in relation to their Air Quality assessment, specifically information relating to start-up and shut-down impact and noise modelling & assessment.

The Applicant submitted the responses to the 1st Schedule 5 notice on the 21st June 2018, 22nd June and the 3rd July 2018. The Applicant submitted the responses to the 2nd Schedule 5 notice on the 3rd August 2018 and the 10th August 2018. The responses received satisfied both notices.

4. Operator

We are satisfied that the Applicant (now the Operator) is the person who will have control over the operation of the facility after the grant of the Permit. The decision was taken in accordance with EPR RGN 1 "Understanding the meaning of Operator".

5. The Legal Framework

5.1 European Directives

All applicable European directives have been considered in the determination of the application.

The applicability of the following European directives has particular relevance to combustion plant applications. We have therefore assessed their relevance to this particular Permit as follows:

- Industrial Emissions Directive
- Medium Combustion Plant Directive
- Energy Efficiency Directive
- Large Combustion Plant Directive.

NRW is satisfied that this decision is consistent 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.

6.The Regulated Facility

This Application is to operate an Installation which is subject principally to the Environmental Permitting Regulations 2016 ('EPR') and is subject to the requirements of the Industrial Emissions Directive ('IED').

The Installation is subject to the EPR because it carries out an activity listed in Part 2 of Schedule 1 to the EPR:

- Section 1.1 Part A (1) – burning any fuel in an appliance with a rated thermal input greater than 50 megawatts.

Schedule 1 EPR defines ‘Installation’ to include ‘directly associated activities’ (‘DAA’). At this Installation, the DAAs include a Gas Reception Facility (GRF), main cooling system, raw material storage, tank farms and surface water drainage system. Together, these listed and directly associated activities comprise the Installation.

6.1 The site

The Operator submitted a site plan which we consider satisfactory, showing the site of the Installation, its extent, and emission points.

The site plan is included in Schedule 7 of the Permit, and the Operator is required to carry out the permitted activities within the site boundary.

6.2 Site Condition Report

The site setting, layout and history of the site is described by the Applicant in the ‘Abergelli Limited Site Condition Report’ supplied with the Application.

The Operator has provided a description of the condition of the site. We consider this description is satisfactory.

The decision was taken in accordance with our guidance on Site Condition Report’s – guidance and templates (H5). Article 22(2) of the IED requires the Applicant to provide a baseline report containing at least the information set out in paragraphs (a) and (b) of the Article before starting operation.

6.3 Proposed site design: potentially polluting substances and prevention measures

The Applicant submitted a Site Condition Report, it was a desktop study and no intrusive sampling was carried out to check the status of the land. As the land is predominantly undeveloped and used for agricultural purposes the Applicant has concluded that the risk of ground contamination is low, and no intrusive sampling required.

Historic maps have shown that the land has been in agricultural use since 1876. No pollution incidents have been recorded on the site itself or within the immediate vicinity.

Whilst setting a baseline is recommended to assist when the Permit is surrendered, it is at the Applicant's own risk to not carry this out. On cessation of activities and surrender of the Permit, the land will need to be of zero contamination. The Installation isn't located within a Groundwater Protection Zone.

The site uses Natural gas as a fuel which is piped on to site and used immediately. High pressure pipework will be designed to minimise potential leak sources. The Installation will be fitted with a fuel gas leak detection system with sensors to trigger automatic system purge and shut-down of the gas system and turbine if a leak is detected. Large quantities of polluting substances such as diesel and chemicals will not be stored on-site, reducing the risk of pollution. The fuel tanks provided for the emergency generator and fire pump will be bunded and comply with the oil and chemical storage regulations.

Chemicals will be stored in the appropriate containers within a bunded area to prevent the loss of contaminating liquids to the environment.

Spill kits will be available on site and staff trained to use them, in an event of a spillage. Secondary containment will also be employed for the cooling system drain and air vents to prevent the releases of anti-freeze used in the process.

There are no releases to land or groundwater associated with the Installation.

In addition, there are no point source releases of process effluents to controlled waters from site, as the Installation uses air cooling for the turbine, large volumes of water are not needed. The compressor blades will need to be periodically cleaned to remove debris that has passed the air intake filters. The frequency of cleaning will depend on the performance of the gas turbine and the local air quality. Washing will either take place on-line or off-line. Any water or waste generated during this activity will be stored on-site and removed by tanker for disposal at an authorised and licenced waste facility.

There will be no discharge of foul sewerage, there are no permanent staff based at the Installation therefore there is no need for permanent welfare facilities. Instead pre-fabricated mobile toilets will be in place on-site with an associated waste storage tank. This will be emptied and removed from site by a licensed waste contractor.

The Applicant has confirmed that all relevant elements of the Installation will be designed in accordance with recognised standards, methodologies and practices.

6.4 Closure and decommissioning

Having considered the information submitted in the Permit application, we are satisfied that the appropriate measures will be in place for the closure and decommissioning of the Installation.

Permit condition 1.1.1a requires the Operator to have a written management system in place which identifies and minimises risks of pollution including those arising from closure.

At the definitive cessation of activities, the Operator must satisfy us that the necessary measures have been taken so that the entire Installation ceases to pose a risk to soil or groundwater, considering both the baseline conditions and the site's current or approved future use. To do this, the Operator must apply to us for surrender, which we will not grant unless and until we are satisfied that these requirements have been met. Pre-operational condition (PO1) requires a soil and groundwater monitoring plan be submitted to Natural Resources Wales for approval.

This plan will set out how the Operator will monitor soil and groundwater going forward. The results from this testing will be used at Permit surrender to assess the condition of the site against the baseline established prior to commencement of activities.

7. Biodiversity, Heritage, Landscape and Nature Conservation

7.1 Sites Considered

The Installation is within the relevant screening distance criteria of protected habitats. A full assessment of the Application and its potential to affect the designated site has been carried out as part of the permitting process. We consider that the Application will not affect the features of the designated sites listed below.

The following European protected sites (i.e. Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar) are located within 10km of the Installation:

- Carmarthen Bay and Estuaries SAC
- Crymlyn Bog SAC/Ramsar
- Bury Inlet SPA/Ramsar

There were no Sites of Special Scientific Interest located within 2km of the Installation:

Several non-statutory Local Wildlife Sites (LWS), National Nature Reserves (NNR), Local Nature Reserves (LNR) and Ancient Woodlands are located within 2km of the Installation, including part of a Site of Importance for Nature Conservation (SINC), which is located within the Installation boundary. These have been considered in the assessment.

We have also checked our records for the presence of European Protected Species (EPS), as defined by the Habitats Directive, within the locality of the Installation. We have no records of any EPS being present in the locality outside the boundaries of the designated sites described above. The Applicant has carried out full species assessments as part of the Development Consent Order process.

7.2 Habitats Risk Assessment

The Applicant has modelled the predicted maximum ground level concentrations of NO_x at all the European protected sites listed above and compared them with the relevant long and short term critical levels (CL) and background concentrations which were obtained from the Air Pollution Information System (APIS) website.

Acid deposition is not a concern with an Installation of this type, as Natural Gas is the only fuel, which is low in Sulphur, therefore acid deposition will be insignificant and has been screened out of the below assessments.

7.2.1 Crymlyn Bog SAC

The Applicant used the APIS website to obtain relevant Critical Levels (CLe) and loads (CLo). The most sensitive habitat has been considered within the SAC which is, *transitional mires and quaking bogs*.

NO_x

The long-term predicted Process Contribution (PC) is 0.01% of the annual mean CLe and the short-term predicted PC is 5% of the 24-hour mean CLe. In this instance the PC is less than 1% and 10% of the long and short-term Cle screening thresholds respectively and as such the impacts are considered insignificant. No further assessment is required.

Nutrient Nitrogen Deposition

The Applicant has used the APIS website to obtain the relevant CLo for Nutrient Nitrogen deposition.

The predicted PC is less than 0.1% of the minimum CLo. This is less than 1% of the screening threshold and therefore the impacts are considered insignificant and no further assessment is required.

Acid Deposition

Even though SO_2 isn't a pollutant of concern as the principal fuel is natural gas, for completeness the Applicant modelled the impact of acid deposition at sensitive sites. The Applicant has used the APIS website to obtain the relevant CLo for Acidification.

The predicted PC is less than 0.1% as a percentage of the Critical Load Function (CLF), this is below the 1% screening threshold and as such the impacts are considered insignificant. No further assessment is required.

7.2.2 Carmarthen Bay and Estuaries SAC

The Applicant has carried out detailed modelling of the potential effects of NO_x from emission point A1. They have used the APIS website to obtain relevant critical levels and loads. The most sensitive habitat has been considered within the SAC which is; *estuaries.*

NO_x

The long-term predicted PC is 0.02% of the annual mean CLe and the short-term predicted PC is 5% of the 24-hour mean CLe. In this instance the PC is less than 1% and 10% of the long and short-term CLe screening thresholds respectively and as such the impacts are considered insignificant. No further assessment is required.

Nutrient Nitrogen Deposition

The Applicant has used the APIS website to obtain the relevant CLo for Nutrient Nitrogen deposition.

The predicted PC is less than 0.1% of the minimum CLo. This is less than 1% of the screening threshold and therefore the impacts are considered insignificant. No further assessment is required.

The site is not sensitive to acidification and therefore no further assessment is required.

7.2.3 Bury Inlet SPA

The Applicant has carried out detailed modelling on the potential effects of NO_x from emission point A1. They have used the APIS website to obtain relevant critical levels and loads. The most sensitive habitat has been considered; *Saltmarshes*

NO_x

The long-term predicted PC is 0.02% of the annual mean CLe and the short-term predicted PC is 4% of the 24-hour mean CLe. In this instance the PC is less than 1% and 10% of the long and short-term Cle screening thresholds respectively and as such the impacts are considered insignificant. No further assessment is required.

Nutrient Nitrogen Deposition

The Applicant has used the APIS website to obtain the relevant CLo for Nutrient Nitrogen deposition.

The predicted PC is less than 0.1% of the minimum CLo. This is less than 1% of the screening threshold and therefore the impacts are considered insignificant. No further assessment is required.

Acid Deposition

The Applicant has used the APIS website to obtain the relevant CLo for Acidification.

The predicted PC is less than 0.1% as a percentage of the CLF. This is below the 1% screening threshold and as such the impacts are considered insignificant. No further assessment is required.

There are no other Installations with similar emissions within the 10km screening distance, therefore no in-combination assessment is necessary and as such the impacts from the Installation on protected European sites can be screened out as insignificant.

On this basis, we consider that there will be no likely significant effect on the interest features of the above protected sites, as a result of the installation's operations.

7.3 Non – Statutory sites

For non-statutory sites, Natural Resources Wales impact assessment criteria considers whether or not an installation can cause significant pollution. If the process contribution from an installation is less than 100% of the critical level or load for a site, we consider that no significant pollution will be caused.

The Applicant screened for non-statutory sites within a 2km range and included all of the sites in the air dispersion impact modelling carried out to inform both the HRA and the Air Quality assessment. The impact on the closest non-statutory site was less than 100% of the relevant critical levels and loads and therefore we are satisfied that significant pollution will not be caused for all non-statutory sites within the 2km screening radius. The modelling looked at a worst-case scenario meaning that max deposition and concentrations were seen at closest site, so sites that are further away will be less affected.

8. Environmental Risk

In determining the application, we have considered the Environmental Statement.

8.1 Assessment of Impact on Air Quality

The Applicant's assessment of the impact on air quality is set out in the Air Quality Assessment sections of the application. The assessment comprises:

- Dispersion modelling of emissions to air from the operation of the gas-fired power station; and
- A study of the impact of emissions on nearby sensitive receptors, including human receptors and habitat/conservation sites.

This section of the decision document deals primarily with the dispersion modelling of emissions to air from the Installation's stack and its impact on local air quality. The impact on conservation sites is considered in the Biodiversity, Heritage, Landscape and Nature Conservation section above.

The Applicant has assessed the Installation's predicted emissions to air against the relevant air quality standards, and human health.

The Applicant used dispersion modelling software ADMS, version 5.2. Within the modelling they used 5 years (2012-2016) of meteorological data from Cwm Level Park, provided by the City and County of Swansea.

As the Installation will operate as a peaking plant for a maximum of 2250 hours per year (1500 hours as a rolling 5-year average), the Applicant factored their predicted annual process contribution concentrations by 0.257 (2250/8760 hrs in a year). When assessing the impact of short-term emissions, continuous operation throughout the year was assumed, this was to give a precautionary approach to the modelling, we are satisfied with this approach.

The Applicant assessed the impact of emissions of oxides of nitrogen (NO_x), expressed as NO_2 (NO_X) and carbon monoxide (CO). Emission limits for the pollutants have been taken from the Large Combustion Plant BREF. The actual oxygen and moisture contents used in the derivation of emission rates was not provided. Our check modelling did include these parameters and the outcome did not change.

The effects of complex terrain and building downwash has been used within the modelling assessment. For the conversion of NO_X to NO_2 a conversion factor of 70% for long-term and 35% for short-term has been applied.

The Applicant carried out a detailed stack height assessment as part of the Environmental Impact Assessment (EIA), to investigate how the dispersion of pollutants differed due to the proposed stack height. The assessment considered the long-term effects of NO_2 and the short-term effects of NO_2 and CO.

The results showed that there were significant benefits in terms of maximum ground level concentrations of NO_2 and CO as the stack height increases from 20m to 32m. This is due to the building downwash effect becoming less prominent. As the stack height increases, a benefit is still witnessed but this is a lot smaller than previously seen. As the stack height reached 34m the long-term maximum ground level impact from NO_2 is less than 1% at any modelled receptor and the short-term maximum ground level impact from NO_2 and CO is less than 10%.

Based on the above information, the Applicant concluded that a stack height of at least 35m and no more than 45m was suitable. The predicted concentrations presented in the assessment are based on the stack height of 35m and this is a worst-case. NRW agree that the stack height assessment is sufficient.

The Applicant stated; *"Typical start up procedures will take around ten minutes to complete, and combustion fuel will not be introduced into the system until two to three minutes of the start-up have elapsed. During the next seven to eight minutes, fuel will be introduced into the system, first at a low rate and then at an increasing rate, up to full load operations. During start up, whilst the concentration of pollutants in the engine exhaust (at reference conditions) may be higher than under partial or full load operation during the first few minutes (e.g. minutes two to eight, at <75% load), the pollutant mass release rate will be lower than under full load operations due to the overall lower flow rates of exhaust gases. Furthermore, the concentration of pollutants decreases rapidly as start-up proceeds and, by around 8 minutes into start up, has decreased to levels equivalent to full load operations."*

A Schedule 5 notice was issued requesting information relating to the impact of start-up and shut-down periods. The Applicant responded by stating that the impact of start-up and shut-down would be 5% greater than normal operation. When this additional 5% was added to the normal operation impact of short-term NO_x, the impact was still insignificant. To take it a step further, the Applicant assumed the impact would be 50% greater, even at this increased level, the impacts were still insignificant at all receptors.

The Air Quality Assessment considered the following substances;

- Oxides of Nitrogen (NO and NO_2), expressed as NO_2 (NO_x)
- Carbon Monoxide (CO)

The Applicant's modelling predictions with regard to human health are summarised in the following sections.

8.1.1 Consideration of Key Air Pollutants

Oxides of Nitrogen (NO and NO_2), expressed as NO_2 (NOx)

The predicted impact on air quality from NO_x emissions has been assessed against the European Union Environmental Quality Standard (EUEQS) of 40 µg/m^3 as a long term annual average and a short term hourly average of 200 µg/m^3.

The Applicant used the Defra background maps for the background values used in the assessment. The Applicant has modelled the predicted impact of long-term and short-term NO_x emissions at 28 human receptors.

Long Term (Annual Mean)

The maximum predicted off-site long-term Process Contribution (PC) was modelled at 0.1 µg/m^3. At 0.25% of the 40 µg/m^3 EUEQS, this is below the 1% threshold for long-term impact and therefore the effects at all 28 off-site locations are insignificant. No further assessment is required.

Short-Term (Daily Mean)

The maximum predicted off-site short-term Process Contribution (PC) was modelled at 4.4 µg/m^3. At 2.2% of the 200 µg/m^3 EUEQS, this is below the 10% threshold for short-term impact and therefore the effects at all 28 off-site locations are insignificant.

NRW carried out our own check modelling using air dispersion software ADMS, version 5.2. The Met Office Numerical Weather Prediction 1.5km resolution meteorological data extracted at the proposed site location was used. Our check modelling and conclusions were based on a stack height of 35m as detailed in the application. We have also included the effects of terrain and building downwash. No Air Quality Management Areas (AQMAs) have been declared within an area likely to be affected by emissions from the Installation.

Our check modelling further indicates that the predicted process contributions of NO_x at human receptors will be less than 1% and 10% of the long and short-term air quality standards respectively. No further assessment is required.

Carbon Monoxide - CO

The maximum predicted off-site 8 hour rolling CO Process Contribution (PC) was modelled at 50.1 µg/m^3. At 0.5% of the 10000 µg/m^3 EUEQS, this is below the 1% threshold for long-term impact and therefore the effects at all 28 off-site locations are insignificant. Our check modelling further indicates that the predicted process contributions of CO at human receptors will be less than 1% of the air quality standards. No further assessment is required.

In summary, we are satisfied that there are unlikely to be any exceedances of long and short-term air quality standards (for NO_x and CO) for protection of human health at sensitive receptors due to the proposal.

8.2 Emissions to surface water

Based upon the information in the application we are satisfied that the appropriate measures will be in place to prevent and/or minimise emissions to water.

There will be no process emissions to surface water from the Installation. The surface water drainage system, will utilise an attenuation basin. This will be located to the South of the Installation and will discharge un-contaminated rain water run-off to an un-named watercourse on the eastern boundary of the site.

Flow restriction will be in-place at the discharge point to restrict flow to the equivalent greenfield run-off rate. The watercourse eventually discharges into the River Afon Llan approximately 330m downstream.

The discharge point will also be fitted with a penstock valve that will allow the basin to be isolated from the environment in the event of a potential pollution incident, where the surface-water would need to be contained.

All rain water run-off from hard surfaces, such as parking areas and storage areas (these areas are designed to remove rainwater by automatic pump), will pass through a Class 1 full retention oil interceptor (as defined in BS EN858) prior to discharge to the attenuation basin and ultimately the environment. The oil interceptor will comply with all relevant legislation.

Further to this the oil interceptor will be fitted with an alarm to indicate when its storage tanks need to be emptied. The oil interceptor is part of the sites EMS and therefore will be regularly serviced and maintained. Pre-operational condition (PO3) has been included in the Permit requesting a full ‘as-built’ drainage plan.

Table S3.3 requires that the Operator continuously monitors oil & grease within the attenuation basin using an oil in water detector.

We are satisfied that the pollution risk associated with the Installation is low based on the use of appropriate surfacing, satisfactory containment, inspection measures and the operating procedures which will be put in place as part of the ISO 14001 environmental management system.

8.3 Emissions to sewer

There will be no emissions to sewer, as the Installation is largely un-manned, pre-fabricated toilets will be installed with a waste tank that will be emptied by tanker and removed to an authorised waste facility for disposal.

8.4 Emissions to soil and groundwater

There will be no emissions to soil or groundwater as a result of the operation of the Installation.

8.5 Fugitive emissions

There will be no significant fugitive emissions associated with the Installation, as the primary fuel is Natural Gas and all operations will occur inside a building.

8.6 Odour

We consider that the Applicant's proposals represent the appropriate measures to prevent/minimise odour from the permitted activities. The Natural Gas is piped into the Installation at pressure. The Installation has leak detection equipment that will detect any leak of gas and purge and shutdown the system.

As we are satisfied that appropriate measures will be in place to prevent or, where that is not practicable to minimise odour and prevent pollution from odour, we consider that no odour management plan is needed and Permit conditions 3.3.1 and 3.3.2 are sufficiently protective.

8.7 Noise

The Applicant submitted a noise assessment considering the potential impact on nearby sensitive receptors. Additional reports were submitted by the Applicant relating to the noise survey that was carried out to support the assessment and a memo providing further information regarding the sound power levels and calculation methods used within the assessment.

The Applicant predicted noise levels at sensitive receptor locations by using the calculation method prescribed in ISO 9613-2. The octave band sound power levels for the noise sources within the modelling were not used. In the absence of this data, A-weighted sound power levels at the 500Hz frequency as recommended in ISO 9613-2 were used. The calculations within the assessment account for attenuation from geometric dispersion, atmospheric attenuation and soft ground attenuation. No attenuation from barrier effects due to terrain or buildings was applied in the modelling.

The Applicant did not provide detailed information regarding the source noise levels, instead it was stated that*: "Discussions were held with potential suppliers and the AECOM database of noise levels for similar projects was examined in order to identify the levels that can be achieved by applying the noise control measures, sound power levels for each of the major sources. Based on that research the following levels were used:*

- *A sound power level of 98 dB L_{WA} from the stack in the direction of the receptors;*
- *A total sound power level of 96 dB L_{WA} from the Generating Equipment enclosures; and*
- *A sound power level of 90 dB L_{WA} from the fin fan cooler."*

The assessment predicted impact from various situations using the assessment methodology BS 4142:2014. BS 4142:2014 assesses the likelihood of significant adverse impact by subtracting the measured background noise level from the rating level:

- A difference of around +10 dB or more is likely to be an indication of a significant adverse impact, depending on the context.
- A difference of around +5 dB is likely to be an indication of an adverse impact, depending on the context.
- The lower the rating level is relative to the measured background sound level, the less likely it is that the specific sound source will have an adverse impact or a significant adverse impact. Where the rating level does not exceed the background sound level, this is an indication of the specific sound source having a low impact, depending on the context.

Six noise sensitive receptors (NSRs) were identified in the assessment. The submitted background monitoring study did not take measurements at NSR 2 and 3, this was due to issues with access. No noise predictions we therefore made or inferred at NSR 2 and 3. A character correction of +3dB for a potentially distinctive character was applied to the modelling.

BS4142:2014 defines daytime periods and night time periods. Day time is defined as 7am-11pm and night time is defined as 11pm to 7am.

The highest predicted day time noise rating level is 38dB, which is -2dB below the day time background at NSR 1. The assessment concluded that there would be no adverse effect. NRW agrees with the conclusion.

The highest predicted night time noise rating level is 38dB, which is 4dB above the night time background at NSR 1. The assessment concluded that it would result in a *"Minor adverse significance of effect at NSR, which would therefore be considered not significant."* This is because the difference between the rating level and the background is below the threshold of +5dB set in BS4142:2014.

We carried out our own checks of the submitted calculations using the ISO 9613-2 calculation method and in addition we used noise modelling software CadnaA version 2018 to verify the Applicants modelling. CadnaA also uses the ISO 9613-2 calculation method.

Our checks are based on the noise source information supplied by the Applicant. We have not included any potential reduction in noise levels due to the influence of terrain.

When assessing the noise impact at NSR 2 and 3, we applied the lowest of the typical L_{A90} values and used that to assess against the predicted rating levels. The predicted impact is not higher than that at the most impacted NSR.

Our check calculations and check modelling agree with the Applicants noise predictions.

Improvement Condition (IC6) requires the Operator to undertake a noise impact assessment at sensitive receptors once the plant is operational, this this aims to provide validation to the Applicants proposed noise source levels and predicted impact.

8.8 Efficient use of raw materials, water and Energy

Having considered the information submitted in the Application, we are satisfied that the appropriate measures will be in place to ensure the efficient use of raw materials and water within the Installation. The Operator is required to report raw material usage under condition 4.2 and Schedule 4. The efficiency of the use of auxiliary fuel will be tracked separately as part of the energy reporting requirement under condition 4.2.2.

The primary fuel is Natural Gas, this will be piped into the Installation when it is needed, the gas will be delivered via high pressure pipework where it is metered into the Installation. Leak detection equipment on the gas system will minimise leak and wastage of gas. The Installation will shut down once a leak is detected.

Large volumes of other materials aren't stored on-site. Lubricating oils, chemicals and supplementary (emergency) fuel are stored in small quantities and only used when needed.

The cooling system for the Installation uses air, therefore significant amounts of water will not be needed. Water will only be used for maintenance purposes and washing of fan-blades when needed.

The Installation uses on-line monitoring of the plant conditions, by using the SCADA monitoring equipment, operators can continuously monitor the plant condition & operation thus ensuring optimal running conditions are maintained.

The energy requirements for an Installation such as this will be low, as there are no permanent staff on-site, minimal heating and lighting will be required.

8.9 Avoidance, recovery or disposal with minimal environmental impact of wastes produced by the activities

This requirement addresses wastes produced at the Installation. The principal waste streams produced by the Installation are general waste, used gas turbine intake filters, separated oil and sludge from oil separators and used lubricating oil. Large quantities of waste will not be generated on-site as the Installation will be largely un—manned. All waste will be removed from site by a licenced waste contractor, adhering to all relevant legislation.

Having considered the information submitted in the application, we are satisfied that the waste hierarchy referred to in Article 4 of the Waste Framework Directive 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 using a method that minimises any impact on the environment. Permit condition 1.4.1 will ensure that this position is maintained.

The Applicant is required to prevent, minimise and control emissions using the Best Available Techniques; this is considered further in the Application of Best Available Techniques section below.

8.10 Flood Risk

The Applicant has assessed the Installation for flood risk using the appropriate flood maps and has considered the future effects of climate change. A Flood Consequence Assessment was submitted as part of the Applicants EIA.

There is no tidal flood risk as the Severn Estuary is approximately 9km away.

The outcome of the Fluvial Risk Assessment (Main River – Afon Llan) is that some small areas of the Installation lie within DAM Zone B (areas known to have flooded historically evidenced by sedimentary deposits) and DAM Zone C2 (Areas of Zone C without significant flood defence infrastructure), however, this part of the site is a proposed water compatible ecological mitigation area. No buildings, development or construction activities falls within either of these zones, this means risk of flooding is very low and is considered acceptable for development. A literature review carried out by the Applicant hasn't indicated any historic incidents of flooding.

The Applicant has reviewed the NRW Fluvial Flood Map and it has shown that the area to the south of the site is located within Flood Zone 3 (the extent of a flood from rivers with a 1% (1 in 100 year) chance or greater of happening in any given year) and coincides with the DAM Zone C2 extent. Most of the site is located within Flood Zone 1 and therefore negligible risk of flooding from rivers.

There is an un-named watercourse to the east and a series of small watercourses and land drains across the site, these do not appear on the NRW DAM or flood maps, however due to the size of the watercourse, steepness of the catchment and size of the receiving floodplain, the risk of flooding is low.

The risk of overland flooding, sewer flooding and groundwater flooding is low.

Mitigation measures have been proposed in the Flood Consequence Assessment to further reduce the risk of flooding.

Drainage ditches will be placed around the uphill site perimeter to prevent inundation of the site with clean surface water, these drainage ditches will be designed to carry the surface water run-off around the Installation and downstream back to the original drainage ditches/watercourse. An emergency overflow will also be provided in the attenuation basin to prevent flooding of the site in an extreme weather event (1 in 100 years). These have been incorporated into the operating techniques and will also be picked up by the DCO.

In summary 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.

9. Operating Techniques

We have reviewed the techniques used by the Operator and have compared these with those set out in the BAT Conclusions for Large Combustion Plant and EPR 1.01 "How to comply with your environmental Permit Additional guidance for combustion activities" and concluded that the operating techniques conform with BAT.

The installation will incorporate the following techniques that are considered to be BAT:

9.1 Technology Choice

The Applicant initially assessed 4 different technology types for the Installation, these were; Combined Heat and Power (CHP), Combined Cycle Gas Turbine Plant (CCGT), Open Cycle Gas Turbine Plant (OCGT) and Reciprocating Gas Engine (RGE).

The Applicant chose OCGT equipment, as this is considered the most suitable technology for the way in which the plant will operate. The Installation will generate 299MW of electrical power as a peaking plant; operating for 1500 hours per year. OCGT was chosen for several reasons;

- The most important reason, is the fast start-up and shut-down times of the plant These are a lot quicker when compared to a similar sized CCGT plant. This means OCGT is better at being able to meet the electricity demands of the grid at short notice.

- The stack height for an OCGT plant is typically lower than a CCGT plant due CCGT plant having a steam turbine, therefore visual impacts are lower with OCGT plant.
- No cooling water is required for the OCGT plant as no cooling is required for condensing steam, therefore the cooling requirements are a lot lower for OCGT when compared to CCGT. Further to this air cooling is utilised on the OCGT through fin fan cooling, this means that there is no significant water usage for an OCGT plant when compared to a CCGT plant. This will further result in no emissions to either surface water or sewer and less demand on the local water resource.
- Due to electricity prices and demand, the plant needs to be flexible and able to meet the demands of the grid and be able to start-up and provide power quickly.
- Noise generated by an OCGT plant is a lot lower than an RGE plant. This is because to meet the 299MW electrical, a larger number of RGE plants would be needed, this would also have a much greater visual impact than an OCGT plant.
- As OCGT plant do not have any associated HRSG/steam turbine plant, the provision of steam from an OCGT plant would not be possible without the provision of additional steam raising equipment, which would require a larger overall land take. With this in mind, CHP has not been a significant factor in the technology choice of the plant.

The chosen technology is an ‘Open Cycle Gas Turbine (OCGT)’. This technology has been chosen over ‘Combined Cycle Gas Turbines (CCGT)’ as OCGT is better suited to peak power generation.

The BAT conclusions document for Large Combustion Plant, doesn’t state whether OCGT or CCGT represents BAT for plants that operate less than 1500 hours per year, whereas over 1500 hours per year CCGT represents BAT. Based on this, the choice of technology is acceptable.

The OCGT plant will achieve net efficiencies of between 38.0 and 41.5% depending on the actual equipment purchased. The LCP BREF document states net efficiencies should be between 36.0 and 41.5% to be considered BAT. Based on the Applicants proposed efficiency figures, we accept this as BAT. However, the efficiency quoted in the BREF document only applies to plant operating more than 1500 hours per year, this Installation will not operate more than these hours and therefore the efficiencies don't strictly apply. Based on the restricted operating hours, the provisions of Article 14 of the Energy Efficiency Directive do not apply.

9.2 Cooling

The Applicant considered 4 options for the cooling system for the plant, these were; once through cooling using river water, evaporative cooling tower, hybrid cooling towers and fin fan coolers.

Fin fan coolers (with a closed loop water system) utilise air as the cooling medium rather than water, therefore there is no significant water consumption. This makes it the best fit for the location of the site plus the operational footprint. Another benefit is that there will be no process discharges to either surface water or sewer, plus the visual impact is greatly reduced.

A full noise impact assessment was carried out by the Applicant, one aspect of this assessment focused on the fin fan coolers as they can often generate more noise than other cooling methods. The noise assessment concluded that noise impacts from the Installation are insignificant at noise sensitive receptors.

Fin fan coolers also use more energy than other cooling methods, however, on balance this won't affect the overall energy efficiency of the site.

Based on energy consumption, once through cooling would have a lower energy demand, however, it would require vast volumes of water, based on the location of the site this method isn't feasible as there isn't a suitable water source that would provide the volumes of water needed.

As the Installation is a peaking plant and doesn't run continuously there would be the added complications of siltation and fouling as water would sit in pipes for periods of time, process effluent discharges would also be another factor with this type of cooling system.

Hybrid cooling towers have a higher energy demand than fin fan coolers plus the requirement to have water as the cooling medium.

On balance, NRW agree that fin fan coolers with a closed cycle cooling system for this Installation in this location represents BAT.

9.3 Releases to Air

NO_x

BAT 42 in the Large Combustion Plant BREF document deals with minimising emissions of NO_x to air, using one or a combination of the techniques listed.

Advanced control systems are used, the Installation is equipped with the latest monitoring equipment to ensure the plant is operating at peak performance and any deviations are detected early.

Water/Steam addition is not relevant for this Installation due to the location and availability of a local water source.

The Applicant has stated that Dry Low NO_x (DLN) burners will be used at the Installation. These burners reduce the peak flame temperature, which is an effective way of reducing NO_x emissions and is a proven primary pollution control measure that does not need secondary control measures, such as Selective Catalytic Reduction (SCR) in place. The DLN burners will control NO_x emissions to the daily BAT-AEL level of 50mg/Nm^3. Improvement Condition 2 (IC2) requires the Operator to define an output load or operational parameters to justify when Dry Low NO_x is effective. Low-load design is not relevant at the Installation due to differences in turbine design.

Low NO_x burners (LNB) are not employed here as DLN burners are used. LNB are generally applicable to supplementary firing for heat recovery steam generators (HRSGs) in the case of CCGT plants. Since the Installation is an OCGT plant this is not relevant. The use of SCR is also not relevant at this Installation. As stated above, DLN burners are used and therefore there isn't the need for secondary NO_x control. In addition, due to the Installation being a peaking plant, the plant will start and stop frequently. This means that SCR is not suitable as the catalysts within the SCR require heat to warm up and become effective, this would require a bypass stack at the Installation, meaning significant additional work with no real benefit in NO_x reduction.

CO

BAT conclusion 44 in the LCP BREF document states; *'In order to prevent or reduce CO emissions to air from the combustion of Natural Gas, BAT is to ensure optimised combustion and/or to use oxidation catalysts'.* The Applicant will use technology to ensure the combustion conditions and performance of the Installation is such that emissions of CO will be minimised. NRW agrees that this represents BAT for the control of CO emissions.

The proposed techniques/ emission levels for priorities for control are in line with the benchmark levels contained in the TGN and we consider them to represent appropriate techniques for the facility.

We consider that the emission limits included in the Permit reflect the BAT for the installation.

The Installation is designed, constructed and operated using BAT for Large Combustion Plant. We are satisfied that the operating and abatement techniques being employed are BAT for Large Combustion Plant.

9.4 CHP Assessment

CHP is the simultaneous generation of electricity and usable heat within the same process, this is also known as cogeneration.

The energy efficiency directive encourages the development of CHP or CHP ready plant; however, it also exempts back-up electricity generating installations which operate less than 1500 hours per year.

CHP has been discounted at this Installation for several reasons. The provision of CHP is not economically feasible as the plant operates as a peaking plant and there is no guarantee that the demand for electricity and heat will be required at the same time. Heat demand is usually constant for a large proportion of the year, due to the nature of this plant, this could not be provided.

OCGT plants do not produce any steam, therefore to provide this an additional steam raising plant would be required, this would add a large financial cost and technical issues which are not reasonable, as explained above a peaking plant would struggle to meet any heat demand as it does not operate continuously.

The Applicant however did carry out a screening assessment of potential heat demand within a 10km screening distance. The only heat demand came from domestic customers, as described above, due to the nature of the plant, a consistent heat demand cannot be met. No future heat requirement in the area has been found that will match the operational pattern of the peaking plant.

Based on the above statements, NRW agree with the Applicant that it can be excluded from being considered CHP/CHP-ready and no further assessment is required.

9.5 Carbon Capture Readiness

The threshold for Carbon Capture readiness applies when a power generating installation has a thermal input more than 300MW. Regarding this Installation the thermal input is 299MW and therefore the requirement to carry this activity out does not apply.

10. The Permit Conditions

10.1 Raw Materials

We have specified limits and controls on the use of raw materials and fuels. Diesel brought on to site must not exceed 0.1% w/w sulphur content.

10.2 Incorporating the application

We have specified that the Applicant must operate the Installation in accordance with the descriptions in the application, including all additional information received as part of the determination process. These descriptions are specified in table S1.2 “Operating Techniques” in the Permit and are therefore directly enforceable.

10.3 Emission Limits

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

The emission limits proposed in the Application are taken directly from the BAT Conclusions document for Large Combustion Plant. Emission limits will apply to NO_x and CO, these are listed in Table S3.1 in the site’s Environmental Permit.

The ELVs selected in the Permit are compliant with the BAT-AELs listed in the BREF document.

The limits set in the Permit are as follows;

NO_x	
Monthly mean of validated hourly averages (from 70% to baseload and from Effective Dry Low NO_x to baseload)	50 mg/m^3
Daily mean of validated hourly averages (BAT-AEL) (from 70% to baseload and from Effective Dry Low NO_x to baseload)	50 mg/m^3
Daily mean of validated hourly averages (from Minimum Start-Up Load (MSUL) to baseload)	TBC following completion of IC9
95% of validated hourly averages within a calendar year (from 70% to baseload and from Effective Dry Low NO_x to baseload)	100 mg/m^3
Annual mean (from Effective Dry Low NO_x to baseload)	35 mg/m^3

CO	
Monthly mean of validated hourly averages (from 70% to baseload and from Effective Dry Low NO_x to baseload)	100 mg/m^3
Daily mean of validated hourly averages (BAT-AEL) (from 70% to baseload and from Effective Dry Low NO_x to baseload)	110 mg/m^3
Daily mean of validated hourly averages (BAT-AEL) (from Minimum Start-Up Load (MSUL) to baseload)	TBC following completion of IC9
95% of validated hourly averages within a calendar year (from 70% to baseload and from Effective Dry Low NO_x to baseload)	200 mg/m^3
Annual mean (Effective Dry Low NO_x to baseload)	TBC following completion of IC3

As the Installation is new, the Operator needs to determine what the MSUL is. Improvement Condition 1 (IC1) requires the Operator to define the minimum start-up and shut-down loads. Based on this the daily ELV for MSUL to baseload will need to be determined once the MSUL has been determined. Improvement Condition (IC9) requires the Operator to set the ELV once the MSUL has been determined.

The CO limits in the BATC document are indicative BAT-AELs. Improvement Condition 3 (IC3) requires the Operator to propose an achievable ELV for the annual mean CO, if this ELV deviates from the indicative BAT-AEL then a BAT assessment will also need to be submitted to justify the deviation.

Actual emissions are almost certain to be below emission limits in practice, because any Applicant who sought to operate its Installation continually at the maximum permitted level would almost inevitably breach those limits regularly, simply by normal fluctuations in plant performance, resulting in enforcement action (including potential prosecution) being taken.

Should the Installation, once in operation, emit at rates significantly below the limits included in the Permit, we will consider setting appropriately lower ELV's. We are, however satisfied that emissions at the permitted limits would ensure a high level of protection for human health and the environment in any event.

The following substances have been identified as being emitted in significant quantities and ELVs based on BAT have been set for those substances;

- NO_2
- CO

It is considered that the ELVs described above will ensure that significant pollution of the environment is prevented and a high level of protection for the environment secured.

10.4 Monitoring

We have decided that monitoring should be carried out for the parameters listed in Schedule 3 of the Permit using the methods detailed and to the frequencies specified in those tables. These monitoring requirements have been imposed in order:

- to demonstrate compliance with emission limit values and to enable correction of measured concentration of substances to the appropriate reference conditions.

For emissions to air, the methods for continuous monitoring are in accordance with the Environment Agency Guidance M2 for the monitoring of stack emissions to air. NRW has adopted this guidance.

The Applicant has confirmed that continuous monitoring will be carried out for the parameters listed in Schedule 3 of the Permit. Once the Continuous Emission Monitors (CEMs) are installed they will be checked for functionality and the performance will be verified. Performance checks will include: leak testing, response times, linearity, interference (particularly any substances that could cause bias), zero and span drift and comparison with a reference method. The installation and management of the CEM will comply with European Standard EN14181, Stationary source emissions. The standard consists of 3 Quality Assurance Levels (QALs 1, 2 and 3) and an Annual Surveillance Test (AST). These will be carried out to ensure compliance. Improvement Condition 8 (IC8) requires the Operator to submit a written summary which presents the results of the calibration and verification testing confirming the performance of the CEMS.

Based on the information in the Application and the requirements of the Permit conditions we are satisfied that the Operator's techniques, personnel and equipment will have either MCERTS certification or MCERTS accreditation as appropriate.

10.5 Reporting

We have specified the reporting requirements in Schedule 4 of the Permit. The Operator will report continuous emissions data for NO_2 and CO every 3 months, and report sulphur dioxide and dust (by calculation) every 6 months. We are satisfied that this frequency is appropriate for a plant of this type. These meet the reporting requirement set out in the IED and ensure data is reported to enable timely review by NRW.

11. Operator Competence

11.1 Environmental Management System

The Applicant has stated in the Application that they operate an Environmental Management System (EMS) certified under ISO14001, a copy of the certificate confirming this was provided as part of the Application, this was for the entire Drax Power station, the site-specific EMS for Abergelli Power will be incorporated into Drax's EMS.

Improvement Condition (IC7) requires the Operator to provide a summary of the EMS within 12 months of the date of commissioning of the plant. We are therefore satisfied that appropriate management systems and management structures will be in place for this Installation, and that sufficient resources are available to the Operator to ensure compliance with all the Permit conditions.

To ensure that the management system proposed by the Applicant 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.

11.2 Relevant convictions

Our Enforcement Database has been checked to ensure that all relevant convictions have been declared. No relevant convictions were found. The Operator satisfies the criteria in EPR RGN 5 on Operator Competence.

11.3 Financial Provision

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

11.4 OPRA

We are satisfied that the Applicant's submitted Operator Performance Risk Appraisal ('OPRA') profile is accurate. The OPRA score is 112 and will be used as the basis for subsistence and other charging, in accordance with our Charging Scheme. OPRA is Natural Resources Wales method of ensuring application and subsistence fees are appropriate and proportionate for the level of regulation required.

ANNEX 1: Pre-Operational Conditions

Table S1.4 Pre-operational measures	
Ref.	**Pre-operational measures**
PO1	At least 1 month prior to the commencement of commissioning, the Operator shall submit the written monitoring plan referenced in Condition 3.1.3 for the monitoring of soil and groundwater for approval by Natural Resources Wales. The monitoring plan shall demonstrate how the Operator will meet the requirements of Articles 14(1)(b), 14(1)(e) and 16(2) of the IED. The monitoring plan shall be implemented in accordance with the written approval from Natural Resources Wales.
PO2	At least 1 month prior to the commencement of commissioning; the Operator shall provide a written commissioning plan, including timelines for completion, for approval by Natural Resources Wales. The commissioning plan shall include the expected emissions to the environment during the different stages of commissioning, the expected durations of commissioning activities and the actions to be taken to protect the environment, you will report to Natural Resource Wales if actual emissions exceed expected emissions and compliance with LCP Bref BAT-AELs, Annex V, Part 2 NOx limits to be qualified from 70% load to baseload. Commissioning shall be carried out in accordance with the commissioning plan as approved.
PO3	At least 1 month prior to the commencement of commissioning the Operator shall supply an as-built drainage plan for the Installation, covering all aspects of the system listed in the Application Supporting Document.

ANNEX 2: Improvement Conditions

Table S1.3 Improvement programme requirements		
Ref.	**Requirement**	**Date**
IC1	The Operator shall submit a report in writing to Natural Resources Wales for approval. The report shall define and provide a written justification of the "minimum start up load" and "minimum shut-down load", for the LCP as required by the Commission Implementing Decision 2012/249/EU in terms of: i. The output load (i.e. electricity, heat or power generated) (MW); and ii. This output load as a percentage of the rated thermal output of the combustion plant (%). And / Or iii. At least three criteria (operational parameters and/or discrete processes as detailed in the Annex of the commissioning decision) or equivalent operational parameters that suit the technical characteristics of the plant, which can be met at the end of start-up or start of shut-down as detailed in Article (9) 2012/249/EU.	Within 4 months of the completion of commissioning
IC2	The Operator shall submit a report in writing to Natural Resources Wales for approval. The report shall define an output load or operational parameters and provide a written justification for when the dry low NO_x operation is effective. The report shall also include the NO_x profile through effective dry low NO_x to 70% and then to full load.	Within 4 months of the completion of commissioning
IC3	The Operator shall propose an achievable emission limit value (ELV) for carbon monoxide expressed as an annual mean of validated hourly averages. If the proposed ELV deviates from the indicative BAT AEL for CO of 40mg/m^3 then an associated BAT justification shall be submitted to Natural Resources Wales for approval in the form of a written report.	Within 4 months of the completion of commissioning
IC4	The Operator shall provide a report in writing to Natural Resources Wales for approval which provides the net rated thermal input and net rated electrical output for LCP002743. Evidence to support this figure, in order of preference, shall be in the form of: - a) Performance test results* during contractual guarantee testing or at commissioning (quoting the specified standards or test codes); b) Manufacturer's contractual guarantee value; c) Published reference data, e.g., Gas Turbine World Performance Specifications (published annually); d) Design data, e.g., nameplate rating of a boiler or design documentation for a burner system; e) Operational efficiency data as verified and used for heat accountancy purposes; f) Data provided as part of Due Diligence during acquisition. *Performance test results shall be used if these are available.	Within 4 months of the completion of commissioning

Table S1.3 Improvement programme requirements		
Ref.	**Requirement**	**Date**
IC5	The Operator shall submit a written report to Natural Resources Wales for approval on the commissioning of the installation. The report shall summarise the environmental performance of the plant as installed against the design parameters set out in the application. The report shall also include a review of the performance of the facility against the conditions of this Permit and details of procedures developed during commissioning for achieving and demonstrating compliance with Permit conditions.	Within 4 months of the completion of commissioning
IC6	Following successful commissioning and establishment of routine steady operation, the Operator shall undertake noise monitoring at the nearest local receptors for both normal operation and for periods of start-up and shut-down. 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 • Reference to the World Health Organisation guidelines for community noise • Reference to the Noise Action Plan for Wales Upon completion of the work, a written report shall be submitted to Natural Resources Wales. The report shall refer to the predictions in the report produced as part of the application. If rating levels likely to cause adverse impact at sensitive receptors are detected, the report shall include an assessment of the most suitable abatement techniques, an estimate of the cost and a proposed timetable for their installation.	Within 6 months of the completion of commissioning
IC7	The Operator shall submit a written report to Natural Resources Wales on the implementation of its Environmental Management System and the progress made in the certification of the system by an external body or if appropriate submit a schedule by which the EMS will be certified.	Within 12 months of the date commissioning
IC8	The Operator shall submit a written summary report to Natural Resources Wales which presents the results of calibration and verification testing to confirm that the performance of Continuous Emission Monitors for parameters as specified in Table S3.1 complies with the requirements of BS EN 14181, specifically the requirements of QAL1, QAL2 and QAL3.	Initial calibration report to be submitted to Natural Resources Wales within 3 months of completion of commissioning Full summary evidence compliance report to be submitted within 18 months of commissioning
IC9	The Operator shall propose achievable emission limit values (ELV) for NO_x and CO expressed as a daily mean of validated hourly averages from Minimum start-up load (MSUL) to baseload. This must be supported by a summary of emissions data. Justification shall be submitted to Natural Resources Wales for approval in the form of a written report.	Within 6 months of the completion of commissioning

ANNEX 3: Consultation Responses

Consultation was conducted as detailed in the "Consultation on the application" section above. Below are tables which summarise responses received together with how they have been addressed in the determination process.

For specific statutory bodies, we have summarised their specific responses in the tables below. No responses were received from members of the public.

1) Consultation Responses from Statutory and Non-Statutory Bodies

Response Received from Mid & West Fire & Rescue Service - response received 6th June 2018.	
Summary of issues raised:	**Summary of action taken / how this has been covered**
No comment to make on fire safety matters but will make full comment on any issues identified when the Local Authority Building Control Department or the appointed Approved Inspector submits plans regarding the proposal for full consultation.	No actions required.

Response Received from Abertawe Bro Morgannwg University Health Board (incorporating comments from Public Health Wales) - response received 27th June 2018.	
Summary of issues raised:	**Summary of action taken / how this has been covered**
1. No issues raised – consultation response concluded that the health board had no grounds for objection based upon public health considerations. This is based on the assessment with a 35m tall stack.	1. No actions required, the stack height will be 35m as outlined in the application and all of the assessment documents.

We didn't receive any responses from the City & County of Swansea Council (Environmental Protection Department & Planning Department), the Health and Safety Executive or National Grid