

Permitting Decisions- Bespoke Permit

We have decided to grant the permit for Virtus Slough Campus Data Centres operated by Virtus Holdco Limited.

The permit number is EPR/BP3945QX

The application is for 31 emergency standby ultra-low sulphur gas oil fuelled generators (SBGs) providing electricity to the Slough Data Centre Campus in the event of a failure of supply from the National Grid, or an internal component failure requiring disconnection from the grid. During such events there is a potential for a delay between fault detection and initial operation of the back-up generators and the initial cover for loss of external power is provided by on-site battery arrays.

The campus comprises three buildings, referred to as:

- London 3 (LON3) – 6 SBGs, aggregated capacity 28.3 MWth
- London 4 (LON4) – 19 SBGs, aggregated capacity 119.7 MWth
- London 10 (LON10) – 6 SBGs, aggregated capacity 28.3 MWth

Each building is operated independently but under a common management system and management structure. The rated capacity of each engine ranges from 5.42 MWth to 7.28 MWth; the aggregated thermal input of all the generators on the campus is 180.5 MWth.

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 provides a record of the decision-making process. It:

- summarises the decision making process in the [decision considerations](#) section to show how the main relevant factors have been taken into account
- highlights key issues in the determination
- shows how we have considered the consultation responses

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

Read the permitting decisions in conjunction with the environmental permit.

Key issues of the decision

In reaching our decision to grant the permit we took into consideration the following matters:

Overview of the Installation

The site is part of a new electronic data storage centre which includes back-up electricity generation capacity, a Schedule 1 S1.1 Part A(1)(a) activity under the Environmental Permitting Regulations (the burning of any fuel in an appliance with a rated thermal input of 50 or more megawatts (MW)). The site is located in an area of light industrial and commercial developments on the Slough Trading Estate in Slough. The nearest residential receptors are approximately 150 m to the north east of the site.

The combustion plant only operates for limited routine testing and maintenance or in an emergency scenario if the National Grid power supply fails. The combustion activity comprises 31 gas oil fuelled standby generators (SBGs):

LON4:

5 x 7.28 MWth

3 x 6.04 MWth

3 x 5.61 MWth

8 x 6.04 MWth

LON3:

6 x 4.72 MWth

LON10:

6 x 5.42 MWth

The aggregated total combustion capacity on site will be 180.51 MWth.

Each generator has a dedicated exhaust stack ranging from 10 to 16 metres above ground level.

Electrical power is provided to the data centre from the National Grid. In the event of a failure of this electrical supply, the operator will utilise the generators to maintain power to the data centre. The generators will be used solely for the

purpose of providing a back-up power supply, with no electricity being exported from the installation.

The generators are subject to a routine maintenance testing schedule - each generator is tested one at a time to minimise air quality impact, at 0% load for 15 minutes per month, for eleven months of the year. Every year the generators are also subject to an additional test, undertaken during the twelfth month of the year. The annual test consists of running the engines sequentially at 100% load for 20 minutes, then reducing to 75% load for 120 minutes. The testing scenarios total 5.1 hours of operation per generator per year and 157.5 hours of operation in total per year. Furthermore, the operator has provided a management procedure that applies to this and other Virtus data centres in the locality (LON9 Data Centre and LON11 Data Centre) and ensures that during testing and maintenance, only one generator is to be worked on at any one time if the generator is required to run. The procedure is included in Table S1.2 (Operating Techniques) of the permit.

Each of the SBGs runs on ultra-low sulphur gas oil fuel, although alternative fuels that can be demonstrated to have an equivalent or lower environmental impact may be agreed in writing with the Environment Agency as they become available. Each generator has a dedicated, above ground fuel tank either situated at one end of each engine/genset container (LON4), or configured as a 'belly tank' (LON3 and LON10), with sufficient fuel for 48 hours run time at emergency (near full) load, in a range of tank sizes from around 25,000 to 30,000 litres per tank.

The fuel tanks installed are integrally bunded steel tanks fitted with a level probe and gauge, overfill prevention valve, high-and low-level alarms and bund alarms to alert of leaks between the two skins of the storage tanks.

The tanks are inspected externally on a daily basis for signs of corrosion and are subject to 5 yearly empty tank inspections.

A fuel polishing unit, comprising a filter to remove particulates and water, is fixed to each tank and is operated to minimise wastage by maintaining the quality of the fuel during long periods of storage and non-use.

The tanks are protected by vehicle movement impact barriers and/or are positioned on raised concrete plinths. The site is engineered to slope to the drainage system, interceptor and control valve.

The operator's EMS includes procedures for supervised fuel delivery (which includes covering of at-risk drains and provision of spill kits) and management of spills and leaks. A spill response exercise is undertaken routinely to test the procedure.

Air Quality

In line with the Environment Agency's guidance (<https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>) and the relevant parts of the guidance applicable to the assessment of air dispersion modelling of emissions from generators (<https://www.gov.uk/guidance/specified-generators-dispersion-modelling-assessment>) the applicant submitted detailed air dispersion modelling and impact assessment to assess the predicted impacts on human receptors and ecological sites.

The methodology for risk assessment of point source emissions to air, and the associated definitions, are set out in our guidance <https://www.gov.uk/guidance/air-emissions-risk-assessment-for-your-environmental-permit>.

The applicant's assessment of the impact of emissions to air is detailed in application document titled 'Virtus Slough Campus: London 3, London 4, London 10 Data Centres Air Quality Assessment', ref: 70092911 AQ02 First issue dated 30/08/2022, supplemented by the applicant's response to our request for information dated 14/10/2022, which was received by the Environment Agency on 04/11/2022 and which includes a 'Technical Note' ref: 70092911, dated 04/11/2022.

The primary pollutants of concern that have been assessed by the applicant are nitrogen dioxide (NO₂) and nitrogen oxides (NO_x) using emissions data from manufacturer's data sheets. The applicant used a statistical analysis methodology to determine the likelihood of the worst predicted emissions from the operations of the standby emergency plant coinciding with the worst meteorological hours over the modelled operating envelope, and subsequently causing a breach of the short-term Environmental Standard (ES) for NO₂ for more than 18 hours in a year, corresponding to the 99.79th percentile specification for the short-term NO₂ ES. The statistical analysis was based on the hypergeometric probability distribution and followed the methodology set out in our [web guidance on dispersion modelling assessment for generators](#).

The applicant scoped out the impacts of particulate matter, explaining that this is due in part to low emissions (stating that emissions of particulate matter from the diesel generators are typically two orders of magnitude lower than NO_x emissions at equivalent load) and in part to the low operating and emergency hours in the year. We accept the operator's approach. Based on particulate emissions data provided in the technical data sheets submitted with the application, we agree that the total operational hours and emergency running period will not be long enough to cause exceedances of the relevant ES.

Impacts from sulphur dioxide (SO₂) have also not been assessed; the plant will run on ultra-low sulphur gas oil. We have included a condition in the permit restricting the fuel to ultra-low sulphur gas oil.

The ADMS Version 5.2.4 software dispersion model was used to predict atmospheric concentrations of the identified pollutants; we accept that the use of this model is appropriate for these circumstances.

Three different operating scenarios were modelled. Two scenarios, Virtus Test 1 and Virtus Test 2, represent routine testing operations. A further scenario, Virtus Emergency 2, represents emergency situations where there is a loss of electrical power. The operating scenarios are summarised below:

- Virtus Test 1 – this is representative of a 15 minute “switch on” offload test (modelled at 10% load as there is no emissions data for zero load); to be carried out monthly for eleven months of the year, i.e. 2.75 hours per generator per year. The operator anticipates that in reality the test will be limited to approximately 5 minutes only.
- Virtus Test 2 – this is representative of a full service onload test consisting of an initial 20 minutes at 100% load followed immediately by 120 minutes at 75% load; to be carried out once per year, i.e. 2.3 hours per generator per year.
- Virtus Emergency 2 – this represents a theoretical complete mains electricity failure of 72 hours duration per year. In this scenario there is an initial period of 20-30 minutes where generators are required to run at 100% load, to recharge the UPS battery array before dropping to the actual load required, designed to be around 60 - 100% depending on the data centre. Based on Ofgem grid operator outage data and on-site outage worst case estimates, the consultant states the operator’s calculated average annual operation emergency scenario assumed a power outage occurs once in every five or six years for 24 hours. Therefore, a 72 hour outage is considered highly conservative. In this scenario all 31 generators operate simultaneously and continuously for 72 hours, i.e. 72 hours of operation per generator in total.

The operator considered continuous monitoring and diffusion tube measurements in the vicinity of the site and used the highest background concentration from the closest background monitoring locations in the assessment. Where relevant, background concentrations at ecological receptors have been derived from the UK Air Pollution Information System (APIS) database.

We have audited the air dispersion modelling assessment report and supplementary Technical Note and carried out check modelling and sensitivity analysis. We reviewed the selection of modelling inputs, modelling methodology and assumptions, selection and distribution of receptors, the outputs of the modelling exercise, statistical interpretation of modelling outputs and conclusions of the assessment.

The operator’s assessment concludes that no significant effects are likely at human health and ecological receptors. We note that the operator did not assess annual NO₂ or nitrogen monoxide (NO) against the relevant Environmental Assessment Levels (EALs).

We agree with the conclusions of the applicant's assessment for short-term impacts at human receptors, which are based on the process contributions (PCs) and predicted environmental concentrations (PECs) given in section 8 of the air quality report, and can be summarised as follows.

For both testing scenarios:

- the probability of exceeding the ES for hourly mean NO₂ is less than 1%, i.e., highly unlikely.
- there are no predicted exceedances of any of the US EPA Acute Exposure Guideline Levels (AEGLs)¹.

For the emergency scenario:

- exceedance of the short-term NO₂ ES is highly unlikely at sensitive receptors for the theoretical 72-hour emergency scenario, with the exception of one receptor (R6). However, the operator notes that provided the power outage is limited to less than 32 hours in a year, then exceedance of the hourly mean is highly unlikely.
- there are no exceedances of the AEGL-1 at hourly or sub-hourly timescales at any receptors.

Our checks indicate that long-term NO₂ and NO and short-term NO PCs are insignificant for the testing scenarios and, taking background concentrations into account, predicted environmental concentrations (PECs) are less than 100% of the relevant environmental standards for the emergency scenario.

We agree with the conclusions of the applicant's ecological assessment, which are based on the results presented in section 9 of the air quality report and in response to question 5 of the supplementary Technical Note, and can be summarised as follows:

- PCs are less than 1% of the annual NO_x critical level (CLe) at designated ecological receptors and below 100% of the CLe for local conservation sites for the Virtus Test 1, Virtus Test 2 and emergency scenarios and are therefore considered to be insignificant. Impacts of acid and nutrient nitrogen deposition are also insignificant at all receptors.

¹ Acute Exposure Guideline levels for Selected Airborne Chemicals, Committee of Toxicology Volume 11, 2012

- for the testing scenarios, PCs are less than 10% of the daily NO_x CL_e at designated ecological receptors and below 100% of the CL_e for local conservation sites.
- for the theoretical emergency scenario, the daily NO_x CL_e is exceeded at several local nature sites (E2, E3, E4 and E6), although the operator refers to the theoretical nature of the emergency scenario, which is not expected to occur each year.

We are satisfied that the applicant's air dispersion modelling assessment is conservative and we agree with the applicant's conclusions regarding human health and ecological impacts for all testing and the emergency scenarios.

We agree that the emergency scenario is presented as a theoretical worst-case and is not permitted as a normal operation. It is representative of an emergency operation allowed to happen only in the unlikely event of failure of electrical supply from the grid. Measures are in place at the site to prevent and manage/mitigate the occurrence of this emergency operation. The primary prevention measure relied upon to avoid this emergency scenario occurring is the highly reliable design of the electrical grid and of the site connections to it (described in the BAT section below). The requirement to run the back-up generators in an emergency is therefore minimised as far as possible and a 72-hour outage scenario is considered highly unlikely.

Based on the information reviewed, we consider that aerial emissions associated with operations of the proposed installation are not likely to cause exceedances of the applicable human health environmental standards nor affect any site of nature conservation and protected species or habitats identified.

Noise

The site will only run the generators regularly as part of the testing regimes described earlier, occurring during daytime hours. Overnight operation of the generators will only occur in an emergency situation. As this is a new installation it is not possible to consider the likelihood of overnight operation by examining the frequency of historical outages, but the potential for prolonged power outages in the area is considered to be low.

The operator has confirmed that the following measures will be in place to reduce the potential for noise impacts outside of the site boundary:

- The generators will be housed within noise insulated steel containers.
- Engine exhaust silencers are positioned in the exhaust stacks.
- Acoustic louvered walls surround the generator compound area.

- All equipment will be maintained and operated in accordance with the manufacturer's guidance and maintained in good working order.
- Any unusual noise or vibration will be investigated immediately and complaints recorded, and actions taken, in accordance with procedures within the operator's EMS.

We have reviewed the requirement for a noise impact assessment using our qualitative noise screening criteria. Based on the nature of the installation and its location, the limited hours of operation and the proposed noise mitigation measures, we anticipate that the risk of noise impacts will not be significant.

Consequently we have not required a noise management plan as part of this determination. However, we have included our standard noise condition in the variation notice, which allows us to ask for a noise management plan if we become aware of noise-related problems on site.

Permit conditions

The permit includes a maximum 500 hours per annum 'emergency/standby operational limit' for any or all the plant producing on-site power under the limits of the combustion activity. Therefore, emission limit values (to air) are not required within the permit. Emergency hours operation includes those unplanned hours required to come off grid to make emergency repair of electrical infrastructure. The limit on the emergency use of 500 hours is for the installation as a whole, meaning that as soon as one generator starts operating the hours count towards the 500 hours.

In addition, the permit allows each individual generator unit to be tested for maintenance. The BAT expectation is that individual generator testing is below 50 hours/annum. In this instance the operator proposes to limit maintaining testing to 5.1 hours per year per generator; this is in line with BAT and below the level at which ELVs would be needed. We expect the number of, and duration of, planned testing and generator operations to be minimised as much as possible. The planned testing operations of the generators shall be limited to the maximum testing hours described in the testing schedule outlined in the application documents and included by reference in the Operating Techniques Table S1.2 of the permit.

The permit does not allow voluntary / elective power generation such as for demand side response (i.e. on-site use), grid short term operating reserve (STOR) (i.e. off-site export of electricity) or Frequency Control by Demand Management (FCDM) for grid support or elective onsite use of electric power, when this can be supplied from the grid. This is primarily to differentiate data centres from 'diesel arrays' that voluntarily operate within the balancing market and importantly provides a clear way to demonstrate minimisation of emissions to air as 'emergency plant'.

Operational and management procedures should reflect the outcomes of the air quality modelling by minimising the duration of testing, phasing generators into subgroups, avoiding whole site tests and planning off-grid maintenance days and most importantly times/days to avoid adding to “at risk” high ambient pollutant background levels.

The permit application has assessed and provided evidence of the actual reliability of the local electricity grid distribution allowing the Environment Agency to judge that the realistic likelihood of the plant needing to operate for prolonged periods in an emergency mode is low.

Reporting of standby generator maintenance run hours is required annually and any electrical outages (planned or grid failures regardless of duration) require both annual reporting and immediate notification of the Environment Agency.

It is anticipated that the timescale of operation is likely to be short. They will only operate in this mode when the National Grid is off-line. The operator has put multiple measures in place to minimise the risk of National Grid supply failure including dual substation connection and management systems for preventing data centre failure.

The permit includes requirement to carry out on-going monitoring of the emissions from the generators (see Monitoring section of this document). As the applicant has not planned the installation of suitable monitoring ports at the present, on the assumption that no monitoring would be required, we have included an improvement condition (IC2) requiring the operator to demonstrate that appropriate sample locations are included in the design of the generators.

Assessment of Best Available Techniques

As outlined in the Environment Agency’s ‘*Data Centre FAQ*’ document, we accept that gas oil fired generators are presently a commonly used technology for standby generators. However, we require a BAT assessment detailing the choice of generator, the particular configuration and plant sizing to meet the standby arrangement.

The default generator specification as a minimum for new plant to minimise the impacts of emissions to air of NO_x is 2g TA-Luft or Tier II US EPA, or an equivalent NO_x emission concentration of 2000mg/m³ at 5% reference oxygen and normal conditions.

Medium combustion plant is considered to be existing plant if it is put into operation before 20 December 2018. Whilst the following engines are considered to be existing plant, we consider that they nevertheless represent BAT, i.e. emissions optimised to be 2g TA-Luft compliant:

5 x 7.28 MWth generators (LON4 emission points A1 – A5)

The following engines are also existing plant and are there not required to operate to BAT standards:

8 x 6.04 MWth generators (LON4 emission points A6 – A8 and A12 – A16)

Nevertheless, the operator committed to remapping these engines to BAT standard and we have therefore included improvement condition IC3 to require the operator to provide evidence of this by 31 January 2024.

The operator confirmed that the following engines, which are new medium combustion plant, have been installed with the emissions optimised software and are therefore Tier 2 compliant, which represents BAT:

3 x 5.61 MWth generators (LON4 emission points A9 – A11)

3 x 6.04 MWth generators (LON4 emission points and A17 – A19)

The operator provided generic CAT certification for the generator types and indicative emission concentrations for emissions optimised variants via manufacturer's data sheets, but was unable to provide compliance certificates for the specific engines, because they were not available from the supplier at the time of determination. We have therefore included improvement condition IC3 to require the operator to provide evidence of this within three months of permit issue.

The operator confirmed that the following engines were commissioned after 20 December 2018 and are therefore considered to be new medium combustion plant but do not currently meet the BAT standard:

6 x 4.72 MWth generators (LON3 emission points A21 – A26)

6 x 5.42 MWth (LON 10 emission points A27 – A32)

The operator has committed to improvements to all the non-compliant engines (A21 – A32). We have therefore included improvement condition IC5, which requires the operator to propose measures to achieve BAT compliance, to be agreed with the Environment Agency and implemented to an agreed timetable. Where relevant the operator shall demonstrate through further air quality assessment that the environmental risks of the proposed measures are minimised and not significant.

The engine exhaust emissions from each LON 3 and LON 4 generator is mixed with engine cooling air before being discharged to atmosphere via vertical stacks 10-16m above ground level. LON10 engines are individually exhausted via vertical stacks to a height of 16m above ground level.

The choice and configuration of back up energy plant is driven by the data centre design i.e. matching the number and size of the SBGs to the power supply

requirements of the data centre (critical IT loads and associated supporting infrastructure, such as cooling equipment). The operator's design allows for single generators, matched to individual power stream load demand, to activate in the event of a single power stream failure instead of a larger generator activating to accommodate a similar failure, or multiple power streams, thus minimising emissions. The data centres will operate with N+1 SBGs to provide the required level of redundancy for resilience during maintenance.

The incoming power system was designed to ensure that only the most major power outages would trigger the operation of the SBGs. There are two separate power feeds to the site. If either of the power feeds is unavailable due to damage, fault or maintenance, the on-site power system will be re-aligned without needing to engage the SBGs. The site also has an uninterruptible power supply comprising a battery bank that provides short-term power should the input power source fail.

Testing and maintenance will not be undertaken during peak-traffic periods e.g. between 16:00 to 19:00 and there will be no simultaneous testing of 2 or more engines. Furthermore, testing and maintenance will be undertaken in accordance with the operator's management procedure mentioned above that ensures no more than one generator will be operated at a time across this and other Virtus data centres in the locality (LON9 Data Centre and LON11 Data Centre).

Protection of Land, Surface Water & Groundwater

The site is fully concreted, including fuel delivery areas and the two engine compounds. The surface water drainage system in these areas is separate from the data centre building and car park surface water drainage systems.

All three compounds discharge via interceptors with shut-off valves prior to the LON4 and LON4 interceptors at to enable isolation in the event of a spillage. LON3 and LON10 discharge to soakaway (emission points W2 and W3), LON4 discharges directly to Thames Water's surface water sewer (emission point W1), which ultimately discharges to Salt Hill Stream.

Fuel storage areas are inspected daily, including the surfaces and pathways to the drains. Delivery procedures are included in the operator's EMS. All deliveries are planned in advance, supervised and all at-risk drains are covered. All pipework, including the delivery point are located within a locked engine enclosures with a drip tray also provided within the container structure, with a vertical pass up to the generator enclosure. Exceptions are at engines with end tanks (LON4) where aboveground pipework is visible in the short run to the engine container and also balancing pipework between tanks (which also provides the facility to pump diesel between adjacent tanks if necessary), which are routinely kept closed. The fuel delivery connection points are located within a locked delivery housing with a drip tray also within the container structure. Tanks are not filled more than 95% of capacity.

The operator's EMS includes procedures for managing accidents, incidents and complaints and details the actions required in the event small incidents such as minor spills and leaks and complaints, as well as major incidents such as fire and major spills.

The fuel (ultra-low sulphur gas oil) is stored in steel tanks, each one situated at one end of each engine/gen-set container or configured as a belly tank. Gas oil is automatically supplied to the generators from the tanks, which are integrally banded with the void capacity being 110% of the capacity of the tank, in line with CIRIA guidance and with a leak detection alarm fitted between the inner and outer skins. The tanks are equipped with overfill prevention valves.

Drainage drawings were provided with the application. Details of the existing condition of the site can be found in the Site Condition Report supplied with the application, which we have reviewed and consider satisfactory.

Decision considerations

Confidential information

A claim for commercial or industrial confidentiality has not been made.

The decision was taken in accordance with our guidance on confidentiality.

Identifying confidential information

We have not identified information provided as part of the application that we consider to be confidential.

The decision was taken in accordance with our guidance on confidentiality.

Consultation

The consultation requirements were identified in accordance with the Environmental Permitting (England and Wales) Regulations (2016) and our public participation statement.

The application was publicised on the GOV.UK website.

We consulted the following organisations:

Local authority Environmental Protection department – Slough Unitary Authority

Food Standards Agency

Health and Safety Executive

UK Health Security Agency

Director of Public Health

The comments and our responses are summarised in the [consultation responses](#) section.

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 our guidance on legal operator for environmental permits.

The regulated facility

We considered the extent and nature of the facility at the site in accordance with RGN2 'Understanding the meaning of regulated facility', Appendix 2 of RGN2 'Defining the scope of the installation' and Appendix 1 of RGN2 'Interpretation of Schedule 1'.

The extent of the facility is defined in the site plan and in the permit. The activities are defined in table S1.1 of the permit.

The site

The operator has provided a plan which we consider to be satisfactory.

These show the extent of the site of the facility.

The plan is included in the permit.

Site condition report

The operator has provided a description of the condition of the site, which we consider is satisfactory. The decision was taken in accordance with our guidance on site condition reports and baseline reporting under the Industrial Emissions Directive.

Nature conservation, landscape, heritage and protected species and habitat designations

We have checked the location of the application to assess if it is within the screening distances we consider relevant for impacts on nature conservation, landscape, heritage and protected species and habitat designations. The application is not within our screening distances for these designations.

We have assessed the application and its potential to affect sites of nature conservation, landscape, heritage and protected species and habitat

designations identified in the nature conservation screening report as part of the permitting process.

We consider that the application will not affect any site of nature conservation, landscape and heritage, and/or protected species or habitats identified.

We have not consulted Natural England.

The decision was taken in accordance with our guidance.

Environmental risk

We have reviewed the operator's assessment of the environmental risk from the facility.

The operator's risk assessment is satisfactory.

General operating techniques

We have reviewed the techniques used by the operator and compared these with the relevant guidance notes and we consider them to represent appropriate techniques for the facility.

The operating techniques that the applicant must use are specified in table S1.2 in the environmental permit.

Use of conditions other than those from the template

Based on the information in the application, we consider that we do not need to include conditions other than those in our permit template.

National Air Pollution Control Programme

We have considered the National Air Pollution Control Programme as required by the National Emissions Ceilings Regulations 2018. By setting emission limit values in line with technical guidance, or by imposing a limit to the operational hours through the permit conditions, we are minimising emissions to air. This will aid the delivery of national air quality targets. We do not consider that we need to include any additional conditions in this permit.

Raw materials

We have specified limits and controls on the use of raw materials and fuels.

Improvement programme

We have included an improvement condition IC1 that requires the operator to develop an air quality management plan in conjunction with the Local Authority. The plan should consider and co-ordinate measures taken at other Virtus data centres operating in the locality (LON9 Data Centre and LON11 Data Centre).

We have included an improvement programme (IC2) on monitoring of emissions (see 'Monitoring' section below).

We have included improvement conditions IC3 and IC4 that require the operator to provide evidence that the stated generators have been remapped to comply with relevant emissions standards.

We have included improvement condition IC5, which requires the operator to propose measures to achieve BAT compliance, to be agreed with the Environment Agency and implemented to an agreed timetable. Where relevant the operator shall demonstrate through further air quality assessment that the environmental risks of the proposed measures are minimised and not significant.

Emission Limits

We have decided that emission limits are not required in the permit.

Monitoring

We have decided that monitoring should be carried out for the parameters listed in the permit, using the methods detailed and to the frequencies specified. In particular:

We have specified monitoring of emissions of carbon monoxide from emission points A9 to A11 and A17 to A19 (LON4), A21 to A26 (LON3) and A27 to A32 (LON10) (new medium combustion plant), with a minimum frequency of once every 1500 hours of operation or every five years (whichever comes first). This monitoring has been included in the permit in order to comply with the requirements of Medium Combustion Plant Directive, which specifies the minimum requirements for monitoring of carbon monoxide emissions, regardless of the reduced operating hours of the plant.

We have also specified monitoring of emissions of nitrogen oxides from emission points A9 to A11 and A17 to A19 (LON4), A21 to A26 (LON3) and A27 to A32 (LON10) (new medium combustion plant), with the same frequency specified for the monitoring of carbon monoxide emissions. In setting out this requirement, we have applied our regulatory discretion, as we consider that this limited monitoring, to happen in concurrence with the carbon monoxide monitoring, is proportionate to the risk associated with the emissions of NOx from the installation.

Taking into account the limited hours of operation of the engines operating at the installation, and the fact that we are not setting emission limits for NOx and carbon monoxide, we consider this monitoring can be carried out in line with web guide 'Monitoring stack emissions: low risk MCPs and specified generators' Published 16 February 2021 (formerly known as TGN M5).

As the applicant has not planned the installation of suitable monitoring ports at the present, on the assumption that no monitoring would be required by the permit, we have included an improvement condition (IC2) requiring the operator to submit for approval an emissions monitoring plan demonstrating that appropriate sample locations are included in the design of the generators.

We have set a requirement for the first monitoring to happen within 4 months of the issue date of the permit or the date when each new medium combustion plant is first put into operation, whichever is later.

Reporting

We have specified reporting in the permit to ensure that the installation is being operated in line with that specified in the operating techniques and to ensure that we are notified immediately in the instance that the site ever operates in emergency scenario mode.

Management System

We are not aware of any reason to consider that the operator will not have the management system to enable it to comply with the permit conditions.

The site is operated in accordance with the operator's ISO 14001 accredited Environmental Management System.

The decision was taken in accordance with the guidance on operator competence and how to develop a management system for environmental permits.

Previous performance

We have assessed operator competence. There is no known reason to consider the applicant will not comply with the permit conditions.

No relevant convictions were found. The operator satisfies the criteria in our guidance on operator competence.

Financial competence

There is no known reason to consider that the operator will not be financially able to comply with the permit conditions.

Growth duty

We have considered our duty to have regard to the desirability of promoting economic growth set out in section 108(1) of the Deregulation Act 2015 and the guidance issued under section 110 of that Act in deciding whether to grant this permit.

Paragraph 1.3 of the guidance says:

“The primary role of regulators, in delivering regulation, is to achieve the regulatory outcomes for which they are responsible. For a number of regulators, these regulatory outcomes include an explicit reference to development or growth. The growth duty establishes economic growth as a factor that all specified regulators should have regard to, alongside the delivery of the protections set out in the relevant legislation.”

We have addressed the legislative requirements and environmental standards to be set for this operation in the body of the decision document above. The guidance is clear at paragraph 1.5 that the growth duty does not legitimise non-compliance and its purpose is not to achieve or pursue economic growth at the expense of necessary protections.

We consider the requirements and standards we have set in this permit are reasonable and necessary to avoid a risk of an unacceptable level of pollution. This also promotes growth amongst legitimate operators because the standards applied to the operator are consistent across businesses in this sector and have been set to achieve the required legislative standards.

Consultation Responses

The following summarises the responses to consultation with other organisations and our notice on GOV.UK for the public and the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section:

Response received from: Public Health England

Brief summary of issues raised: recommendation that dispersion modelling considers impacts of oxides of nitrogen (NOx) and particulate matter.

Summary of actions taken:

As described in more detail in the Air Quality section above, we have audited the air dispersion modelling and assessment the applicant submitted with the

application. This included undertaking detailed check modelling and completing sensitivity analysis.

We consider that the modelling assessment for NO_x is conservative and that the baseline air quality has been taken into account following our guidance. In particular, for short term impacts, e.g. 1 hour means, the standard approach of adding double the annual average (long term) background concentration to the PC is used to calculate the PEC, in line with our guidance. Hour to hour variation in process contribution (PC) is reflected in the modelling (i.e. using hourly meteorological data).

Regarding particulate matter, the applicant states that *'the modelling of impacts on particulate matter are scoped out of this assessment'* stating that *'this is due in part to the low emissions and in part to the low operating hours in the year, and with only 3 days of emergency outage'*. We accept the applicant's approach. We agree that the total operational hours and emergency running period will not be long enough to impact the short-term PM₁₀ environmental standard. Our checks also indicate that long term PM₁₀ process contributions are insignificant for all scenarios (Test 1, Test 2 and Emergency).

In conclusion, we are satisfied that no significant effects on human health are likely from the operation of the proposed installation.