

Permitting Decisions- Variation

We have decided to grant the variation for Virtus Data Centres Stockley Park Campus operated by Virtus HoldCo Limited.

The variation number is EPR/AP3903PD/V002.

The variation authorises the operation of the additional 38 standby gas oil generators installed within data halls London 7 and London 8 at the Virtus Data Centres Stockley Park Campus, consisting of 246.84 MWth total installed thermal input.

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

- highlights [key issues](#) in the determination
- summarises the decision making process in the [decision considerations](#) section to show how the main relevant factors have been taken into account
- 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 and the variation notice.

Key issues of the decision

Prior to this variation, the installation was permitted to operate 36 diesel emergency generators with total installed thermal input of 223.42 MWth across two data halls referred to as London 5 and London 6.

This variation authorises the operation of additional 38 standby diesel generators installed within data halls London 7 and London 8 at the Virtus Data Centres Stockley Park Campus, consisting of additional 246.84 MWth thermal input.

Background to this application

The London 7 and London 8 diesel standby generators proposed in the scope of this variation were included in the initial permit application EPR/AP3903PD/A001, along with the generators in data halls London 5 and London 6.

As part of the determination of application EPR/AP3903PD/A001 we previously refused to grant a permit covering the combustion activities in London 7 and London 8, because the operating techniques proposed did not meet the best available techniques (BAT) requirements applicable to standby generators aggregated to more than 50 MWth input.

The Environment Agency's 'Data Centre FAQ', draft version 11.0 summarises our approach to the permitting and regulation of diesel standby plant serving data centres. This document was developed by the Environment Agency as a draft non-statutory guidance following the principles set out in IED Article 14(6) for the determination of best available techniques (BAT).

In determining BAT under Article 14(6) of the IED for standby combustion plant, we considered all the relevant environmental aspects and in particular the need for minimising the duration and potential impact of peak NO_x emissions to air and the subsequent harm to human health. BAT for new standby diesel engines includes utilising the best available technology for minimising NO_x emissions. According to this principle, we consider BAT diesel standby generators should be 'emissions optimised' rather than 'efficiency optimised'. The requirement for 'emissions optimised' engines are broadly represented by compliance with the international build standards 2g TA-Luft or the US EPA Tier 2.

'2000mg/m³' or '2g/m³' is the referred to short hand term for emission optimised engines quoted under the TA-Luft standard. This emission level constitutes a BAT benchmark for 'emissions optimised' standby diesel engines. The US EPA tier 2 standard expresses engines using a mass rate per kWh of power generated, averaged across multiple load points. Emission levels consistent with BAT are achieved through combustion controls, engine design and installation configurations so for any given engine arrangement (with reasonable tolerances around terms and definitions) an engine meeting '2g' also meets 'EPA Tier 2' and are indeed typically quoted together.

According to the information assessed as part of the original application for EPR/AP3903PD/A001, the proposed engines for London 7 and London 8 were considered new engines, therefore subject to the BAT requirements outlined above.

However, the original proposal for data halls London 7 and London 8 consisted of engines that were not compliant with the 2g TA-Luft standard or the US EPA Tier 2 standard, or able to achieve an equivalent level of environmental performance. Based on the information submitted with the original application EPR/AP3903PD/A001, the NO_x emissions achieved by the engines installed in

London 7 and London 8 data halls were substantially higher than the NOx BAT benchmark emission level.

As part of the determination of application EPR/AP3903PD/A001 we therefore refused the application for the combustion activities in London 7 and London 8 data halls and we issued a permit allowing only the proposed combustion activities for London 5 and London 6 data halls. Further details can be found in the permitting decision document for application EPR/AP3903PD/A001.

As part of this variation application, the Applicant has now committed to implementing an improvement programme aimed at reducing the emissions of oxides of nitrogen (NOx) from the proposed engines in London 7 and London 8, to make them compliant with BAT.

We have focused our determination of this variation application on the review of the revised BAT proposal submitted by the Applicant. We have also reassessed the potential air quality impacts from the installation. Other aspects which were not material to the partial permit refusal of application EPR/AP3903PD/A001 have not been reassessed in detail as part of this variation determination, as we were already satisfied that they were acceptable as part of the previous permit determination.

BAT assessment

The improvement programme to make the engines proposed for data halls London 7 and London 8 compliant with BAT consists of:

1. **Remapping the combustion controls** of the standby generators in London 7 to achieve NOx emission levels consistent and certified to US EPA Tier 2 standard.

This measure was completed in June 2022 and the Applicant submitted evidence in the form of technical documentation from the equipment manufacturer confirming compliance to US EPA Tier 2 for the generators installed in London 7.

2. Retrofitting the standby generators in London 8 with **Selective Catalytic Reduction** (SCR) specified to achieve 98% abatement of NOx.

The Applicant explained that the specific engine model installed in London 8 was not suitable for remapping the combustion controls to achieve US EPA Tier 2 compliance, in a similar way to the engine models installed in London 7.

Therefore, the Applicant proposed a solution consisting of retrofitting SCR to London 8 engines. The SCR is designed to achieve emission levels of 100 mg/m³ NOx at 5% oxygen on a dry basis, normal temperature and pressure.

The initial proposal submitted by the Applicant as part of this variation application entailed the installation of SCR to 7 of the 14 engines in London 8, whilst the remaining engines were proposed to continue operating unabated at emission

levels in excess of those consistent with TA Luft 2g or US EPA Tier 2 BAT standards.

Following an initial review of the application, the Applicant amended their initial proposal. According to the revised proposal, the SCR retrofitting was proposed to be carried out in two phases on all the London 8 engines.

The first phase, entailing the installation of SCR to 7 of the 14 engines in London 8, will be completed in March 2023.

The Applicant provided an equivalence calculation showing that fitting SCR to 7 of the 14 engines in London 8 will be sufficient to achieve an overall environmental performance during a power outage which is equivalent to the one that the London 8 data hall would have achieved if all the engines were able to meet emission levels associated with BAT (i.e. TA Luft 2g standard or US EPA Tier II) without SCR.

In a second phase, proposed to be completed in 2025, the remaining 7 engines will be retrofitted with SCR, further reducing the emissions of NOx from the installation.

Furthermore, the Applicant has also committed to carry out improvements to the previously permitted standby engines which are part of the London 5 data hall, in response to an improvement condition previously specified in the permit (IC6).

We have reviewed the operating techniques proposed by the Applicant and we consider that they now meet BAT for this type of activity.

We are satisfied that the engines in London 7 are now compliant with BAT, in that they are confirmed to comply with US EPA Tier 2 standard.

We are satisfied that retrofitting SCR to 7 of the engines in data hall London 8 as part of Phase 1 will achieve an initial level of environmental protection equivalent to the one that London 8 would have achieved if all the engines were compliant with TA Luft 2g or US EPA Tier II standard. However, we have accepted a revised proposal submitted by the Applicant, to fit SCR to the remaining engines in London 8 in a subsequent phase. We consider that this will be beneficial to partially offset the environmental performance of the engines installed in London 6 data hall, for which it was not possible to reduce NOx emissions through combustion remapping as part of improvement condition IC6. Completing the retrofitting of SCR to all the generators installed in London 8 will therefore achieve an overall improvement to the environmental performance of the installation as a whole, during emergency operations.

We have therefore decided to accept the proposal submitted by the Applicant.

We have set improvement conditions IC7 and IC8 requesting the Operator to confirm completion of the SCR retrofitting works in London 8, respectively for phase 1 and phase 2.

Air Quality

The air emissions from the installation, including London 7 and London 8 engines, were assessed as part of the determination of the original application EPR/AP3903PD/A001, even if that determination led to a partial refusal of London 7 and London 8 combustion plant due to the non-compliance of the proposed engines with BAT.

The NO_x emission reduction measures proposed as part of this variation application for London 7 and London 8, in addition to the emission reduction measures implemented by the Operator on London 5 as part of the existing improvement condition IC6, are expected to result in reduced impacts, compared to the risk envelope previously assessed as part of application EPR/AP3903PD/A001.

However, as part of the previous determination EPR/AP3903PD/A001, we set improvement condition IC1, requiring the operator to update their air dispersion modelling assessment for oxides of nitrogen in order to address certain gaps we had identified in the assessment methodology and assumptions (further details are available from the decision document for determination EPR/AP3903PD/A001). We had no concerns about potential impacts of other pollutants, i.e. particulates and sulphur dioxide.

For this reason, the Applicant has submitted a revised air emission risk assessment of NO_x as part of this variation application, addressing the gaps identified by IC1 and including the revised emission profiles for London 7 and London 8. In addition to that, we have also requested the applicant to submit a risk assessment for emissions of ammonia (NH₃) associated with potential ammonia slip from the operations of the proposed SCR systems in London 8, which is a new area of risk introduced by the amended design previously not assessed. Both the maintenance testing and emergency scenarios have been assessed within the revised modelling exercise.

The Applicant's air quality risk assessment is set out in the application document titled 'Virtus Data Centres Stockley Park Campus - Air Quality Assessment', received on 12/07/2022. Two addenda reports were submitted in response to our requests for additional information: 'Virtus Data Centres Stockley Park Campus – Addendum Air Quality Assessment: Ammonia', received on 26/07/2022 and 'Virtus Data Centres Stockley Park Campus Air Quality Report – Technical Note 1', received on 16/08/2022.

The air dispersion model submitted with the application takes into account the installation of SCR to 7 out of the 14 engines in data hall London 8.

The Applicant's assessment was carried out 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 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>.

Process contributions (PCs) are considered **Insignificant** if:

- the **long-term** process contribution is less than **1%** of the relevant environmental standard (ES); and
- the **short-term** process contribution is less than **10%** of the relevant ES.

The **long-term** 1% process contribution insignificance threshold is based on the judgements that:

- It is unlikely that an emission at this level will make a significant contribution to air quality;
- The threshold provides a substantial safety margin to protect health and the environment.

The **short-term** 10% process contribution insignificance threshold is based on the judgements that:

- spatial and temporal conditions mean that short term process contributions are transient and limited in comparison with long term process contributions;
- the threshold provides a substantial safety margin to protect health and the environment.

Where an emission is screened out in this way, we would normally consider that the Applicant's proposals for the prevention and control of the emission to be BAT. That is because if the impact of the emission is already insignificant, it follows that any further reduction in this emission will also be insignificant.

However, where an emission cannot be screened out as insignificant, it does not mean it will necessarily be significant.

For those pollutants which do not screen out as insignificant, we determine whether exceedances of the relevant ES are likely. This is done through detailed audit and review of the Applicant's air dispersion modelling taking background concentrations and modelling uncertainties into account. Where an exceedance of an ES is identified, we may require the Applicant to go beyond what would normally be considered BAT for the Installation or we may refuse the Application if the Applicant is unable to provide suitable proposals. Whether or not exceedances are considered likely, the Application is subject to the requirement to operate in accordance with BAT.

This is not the end of the risk assessment, because we also take into account local factors for example:

- Statutory protected ecological receptors nearby, i.e. Sites of Special Scientific Interest (SSSIs), Ramsar sites, Special Areas of Conservation (SACs) or Special Protection Areas (SPAs).
- Non-statutory protected ecological receptors, such as local nature sites

The insignificance criteria for statutory protected ecological receptors are:

- the short term PC is less than 10% of the short term environmental standard for protected conservation areas
- the long term PC is less than 1% of the long term environmental standard for protected conservation areas

If the long term PC is greater than 1% we look at the background concentration and calculate the predicted environmental concentration (PEC). If the PEC at the statutorily protected ecological receptor is less than 70% of the long term environmental standard for protected conservation areas, the emissions are considered insignificant.

The insignificance criteria for non-statutory protected ecological receptors are:

- the short-term PC is less than 100% of the short-term environmental standard for protected conservation areas
- the long-term PC is less than 100% of the long-term environmental standard for protected conservation areas

The installation is within Hillingdon Air Quality Management Area (AQMA), designated for nitrogen dioxide.

The air dispersion model carried out by the applicant used the ADMS software which we consider an appropriate air quality modelling tool for regulatory purposes. The model used 5 years meteorological data (2015-2019) from the Heathrow airport meteorological station and included the potential effects of buildings in the modelling domain on the dispersion of the emitted pollutants. The assessment carried out by the Applicant also included a sensitivity analysis of the modelling set up and a statistical interpretation of short-term exceedances of air quality standards. 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 following scenarios were modelled:

Virtus Test 1: representative of a 15 minute “switch on” offload test; to be carried out on monthly basis in eleven months of the year on individual engines.

According to the application, in reality this scenario will be limited to approximately 5 minutes.

Virtus Test 2: representative of a full service onload test consisting of an initial 20 minutes at 100% load immediately followed by 120 minutes at 75% load; to be carried out once per year in the 12th month of the year on individual engines.

Virtus Emergency 2: Theoretical complete mains electricity failure of 72 hours duration. 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 building load required, designed to be around 80 - 90%.

The applicant's air dispersion model predicted impacts over of a cartesian grid of distributed receptors and at nineteen discrete sensitive human health receptors located near the facility. We have checked these receptors and agree with their location.

The applicant considered fourteen ecological receptor locations within 10 km for designated European and Ramsar sites, and 2 km for Sites of Special Scientific Interest (SSSI) and local nature sites. We have checked the locations and agree with their selected sites. These include:

- The following statutory protected habitats sites are located within 10km of the installation:
 - South West London Waterbodies SPA (UK9012171)
 - South West London Waterbodies Ramsar (UK11065)

The South West London Waterbodies SPA and Ramsar consists of multiple locations, the closest of which is approximately 6.3km south-south-west of the installation.

- The following non-statutory local wildlife and conservation sites located within 2km of the installation:
 - Little Britain
 - St George's Meadow's, Southlands Art Centre
 - River Pinna and Manor Farm Pastures
 - The Grove
 - Stockley Park Country Park
 - Stockley Road Rough
 - Iron Bridge Road Railsides
 - Stockley Business Park Lakes & Meadows
 - Bolingbroke Way Sunken Pasture
 - London's Canals
 - Lower Colne

- Wall Garden Farm Sand Heaps
- Carp Ponds and Broads Dock
- Lake Farm Country Park

There are no SSSIs located within 2km of the installation.

The findings and conclusions of the Applicant's assessment of the impacts from the aerial emissions of the installation are summarised in the following:

For Virtus Test 1:

- The hourly mean NO₂ PC is insignificant at all assessed human receptors.
- As SCR use requires a minimum exhaust temperature of approximately 320°C, it will not be operational during offload testing (i.e. Virtus Test 1). Therefore, there is no potential for NH₃ emissions and is scoped out for the Virtus Test 1 scenario.
- Under Virtus Test 1, at the ecological sites considered the annual mean and daily mean NO_x PCs are insignificant. The nutrient nitrogen and acid deposition rate PCs are also insignificant for all ecological sites.

For Virtus Test 2:

- The hourly mean NO₂ PC is 'not insignificant' for some human health receptors, i.e. over 10% of the ES. However, the predicted environmental concentrations (PECs) are below the ES.
- The annual and hourly mean NH₃ PCs are insignificant compared to the relevant ES.
- There are no predicted exceedances of any of the US EPA Acute Exposure Guideline Levels (AEGs) used for emergency response at the assessed human health receptors.
- The daily mean NO_x PCs are insignificant for all ecological sites, except Iron Bridge Road Railsides LWS (E7)
- At the ecological sites considered, the annual mean NO_x PCs are insignificant. The nutrient nitrogen and acid deposition rates are also insignificant for all ecological sites.
- The annual mean NH₃ PC at all ecological sites is insignificant, i.e. less than 1% of the critical level.

For the emergency scenario:

- The highest hourly mean (100th percentile) NO₂ prediction exceeds 200 µg/m³ at some receptors, including residential properties. However,
- For 72 hours of emergency operations exceedance of the hourly NO₂ ES is highly unlikely.
- The annual and hourly mean NH₃ PCs are insignificant compared to the ES.
- Exceedance of AEGL-1 is highly unlikely at the assessed discrete human receptors. There is a potential to exceed the AEGL-1 as a maximum on the grid (to the north of the site on Horton Road) when taking background

concentrations into account, although this only occurs at the boundary of the site car park in an area where exposure of members of the public is less likely. On sub-hourly timescales (down to 10 minutes), the AEGL-1 might be exceeded to the north of the site on Horton Road, the southern fringe of Stockley Park Golf Course (within 100m of the site boundary) and, sporadically, within light industrial land approximately 80m to the south and east of the site.

- The AEGL-2 and AEGL-3 levels are not exceeded at any location.
- At the ecological sites considered, the change in annual mean NO_x concentration is insignificant. The increase in nitrogen and acid deposition rates is insignificant for all ecological sites. However, there is potential for exceedance of the daily mean NO_x critical level of 75 µg/m³.
- Taking into account the likelihood of occurrence of a 72-hour complete site power outage, the risk of impacts is negligible over the Southwest London Waterbodies Ramsar/SPA and low over the LWS in the study area.

Based on the results of the assessment carried out and their interpretation, the applicant concluded that no significant effects are likely on human health and ecological receptors due to the operation of the generators at the Stockley Park Campus.

The Environment Agency's Air Quality Modelling and Assessment Unit (AQMAU) has audited the air dispersion modelling and report submitted with the variation application, including the selection of inputs, modelling methodology and assumptions, outputs of the modelling exercise, statistical interpretation of modelling outputs and conclusions of the assessment. We have undertaken detailed check modelling and completed sensitivity analysis.

We agree with the conclusions of the Applicant's assessment. Our key observations are summarised in the following:

- We agree with the Applicant's numerical predictions and the conclusions of their assessment summarised above;
- The Applicant has not assessed potential impacts from emissions of nitric oxide (NO) against the relevant EALs. Our checks indicate long-term and short-term PCs of NO are insignificant under the testing scenarios, and unlikely to be exceeded under the emergency scenario;
- The conclusions of the assessment in relation to impacts from NH₃ emissions will not change when the installation of SCR is extended to the remaining 7 engines in London 8, while the impacts associated with emissions of NO_x will be reduced.

In line with our policies and guidance on the operations of standby generators serving electronic data centres, explained in the 'Data Centre FAQ', we consider that the air quality risks associated with the emergency operations during outage scenarios are addressed and mitigated by the requirement for these types of installations to develop an Air Quality Management Plan (AQMP). The site operates according to an approved AQMP, which has been added to the operating techniques of the permit table S1.2.

Other 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

We consulted the following organisations:

- Food Standards Agency
- Local Authority – Environmental Health
- Director of Public Health
- Public Health England

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

The site

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

Refer to section 'Air Quality' for further details.

We have not consulted Natural England, but we have sent to them our Habitats Regulation assessment for information. 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 was generally satisfactory, but we had to supplement it with additional assessment: the operator did not assess potential impacts from emissions of nitric oxide (NO) against the relevant EALs. Our checks indicate long-term and short-term PCs of NO are insignificant under the testing scenarios, and unlikely to be exceeded under the emergency scenario.

The assessment shows that, applying the conservative criteria in our guidance on environmental risk assessment all emissions may be screened out as environmentally insignificant, with the exception of nitrogen oxides. Refer to the section on 'Air Quality' for further information.

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.

Operating techniques for emissions that do not screen out as insignificant

Emissions of nitrogen oxides cannot be screened out as insignificant. We have assessed whether the proposed techniques are Best Available Techniques (BAT).

The proposed techniques/ emission levels for emissions that do not screen out as insignificant are in line with the techniques and benchmark levels contained in the technical guidance and we consider them to represent appropriate techniques for the facility. Refer to the 'BAT assessment' section for further information.

Operating techniques for emissions that screen out as insignificant

Emissions of ammonia have been screened out as insignificant, and so we agree that the applicant's proposed techniques are Best Available Techniques (BAT) for the installation.

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 limiting the operating hours of the combustion equipment and ensuring they comply with BAT, 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.

Improvement programme

Based on the information on the application, we consider that we need to include an improvement programme.

We have included an improvement programme to ensure that the emissions reduction commitments made by the Applicant are complied with.

Emission Limits

We have decided that emission limits are not required in the permit. The Operator is required to monitor NO_x and carbon monoxide every 1500 hours of operation or once every five years, whichever comes first, in line with MCPD and web guide 'Monitoring stack emissions: low risk MCPs and specified generators', published 16 February 2021 (formerly known as TGN M5).

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 A37 to A74 (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 A37 to A74 (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 NO_x 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 NO_x 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).

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.

The Operator will be required to report on NO_x and carbon monoxide as specified in table S3.1 of the permit. They are also required to report on generator operation for testing and maintenance as set out in table S4.2. We made these decisions in accordance with 'Monitoring stack emissions: low risk MCPs and specified generators' Published 16 February 2021' (formerly known as TGN M5).

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

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 variation.

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 the way in which we have considered these in the determination process.

Responses from organisations listed in the consultation section

Response received from UK Health Security Agency (UKHSA).

Brief summary of issues raised:

Following review of the application documents, UKHSA requests that the Environment Agency takes account of the following concerns when considering appropriate permit conditions.

- In the modelled scenarios it is understood that the site's predicted concentration has been added to the baseline concentration to quantify the predicted environmental concentrations. It is unclear if in the modelled scenarios which have a duration of more than 1 hour (Virtus test 2 and Emergency scenario 2), if the background concentrations incorporate the predicted concentrations from the preceding hour and if this would result in worse than currently predicted environmental concentrations.

- During routine testing, modelling predicts an exceedance ($295.8\mu\text{g}/\text{m}^3$) of the hourly UK Air Quality Standard for nitrogen dioxide ($200\mu\text{g}/\text{m}^3$); although it is acknowledged that this objective is not exceeded more than 18 times a year (as required by the standard). The applicant states that this occurs on the northern boundary of the site; although it is noted that exceedances of this standard are additionally predicted on the eastern and southern site boundaries (Figure 4).

UKHSA note the presence of Busy Bees Nursery adjacent to the east of the site. Whilst exceedances are not modelled at this location, considering the proximity of this sensitive receptor, the EA may wish to consider or request additional mitigation to minimise effects. This could include, but not be limited to undertaking routine testing during favourable wind conditions, or when monitored background air quality is reduced considering that the site is located within an Air Quality Management Area for nitrogen dioxide.

- The modelling during 'emergency scenario 2' reports an area approximately 80-100m from the site boundary to be exceeding the Acute Exposure Level Guidelines, Level 1 for a 10-minute averaging period. UKHSA note the presence of footpaths adjacent to the south and west of the site, and it is unclear why these have not been included as receptors in the assessment given that a member of public could be present at these locations for this time duration.

- During this scenario, modelled concentrations are reported to exceed the hourly UK Air Quality Standard for nitrogen dioxide at 10 identified receptors (maximum modelled concentration $623\mu\text{g}/\text{m}^3$); however, this will not be exceeded at identified receptor locations more than 18 times in a year.

- The site is proposing to retrofit seven of fourteen generators with selective catalytic reduction (SCR) to ensure compliance of these seven machines with Environment Agency Best Available Techniques (BAT). It is reported that by undertaking this, combined generator emissions will be beneath BAT requirements. UKHSA recommends the Environment Agency consider further mitigation or improvement conditions so that all generators comply with BAT, acknowledging public health benefits in reducing concentrations of non-threshold pollutants beneath air quality standards. Furthermore, the Environment Agency may wish to consider further modelling to demonstrate benefits should SCR be installed on all generators.

Summary of actions taken:

We have taken into account the observations raised by the UKHSA. The Environment Agency's Air Quality Modelling and Assessment Unit (AQMAU) has audited the air dispersion modelling and report submitted with the variation application, including undertaking detailed check modelling and completing sensitivity analysis.

We consider that the modelling assessment is reasonably 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).

The short-term air quality standard for NO₂ is specified as 99.79th percentile, therefore allowing 18 hours per year during which concentrations of NO₂ higher than 200µg/m³ would not constitute a breach of the air quality standard. In line with our requirements, the applicant has assessed 100th percentile process contributions on a conservative basis. As a result of our auditing checks, for both testing scenarios, we found that there are no exceedances of the short-term NO₂ air quality standard at any sensitive human receptor locations.

Figure 5 of the air quality assessment submitted by the Applicant shows a contour plot with the area of hatched shading showing the area within which the risk of exceedance of the 10 minute AEGL-1 is greater than 1% during 'emergency scenario 2'. AQMAU modelled discrete receptors along the footpath around the site in all our detailed audits and check modelling of the Virtus Stockley Park application and agree with the applicant's results. We predicted marginal exceedance of 10min AEGL-1 at some footpath locations but statistically predicted exceedance are highly unlikely, i.e. emergency outage scenario is unlikely, it is unlikely that worst-case meteorological hours coincide with an outage and 10-minute public exposure.

In line with our policies and guidance on the operations of standby generators serving electronic data centres, we consider that the air quality risks associated with the emergency operations during outage scenarios are addressed and mitigated by the requirement for these types of installations to develop and operate according to an Air Quality Management Plan (AQMP). The site operates according to an approved AQMP, which has been added to the operating techniques of the permit table S1.2.

We are satisfied that retrofitting SCR to 7 of the engines in data hall London 8 as part of Phase 1 will achieve an initial level of environmental protection equivalent to the one that London 8 would have achieved if all the engines were compliant with TA Luft 2g or US EPA Tier II standard, which we consider BAT for these types of installations. However, we have accepted a revised proposal submitted

by the Applicant, to fit SCR to the remaining engines in London 8 and we have set an improvement condition accordingly. As we agree with the Applicant's conclusions that no significant effects are likely on human health due to the operation of the installation during its Phase 1 configuration and, since the installation of additional SCR as part of Phase 2 will further reduce NOx emissions and associated impacts, we do not consider further modelling required.

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