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/V004.

The variation authorises the operation of an additional 4 x 6.857 MWth standby gas oil generators installed within data hall London 7.5 at the Virtus Data Centres Stockley Park Campus.

The standby generators are fitted with selective catalytic reduction abatement (SCR).

The total installed capacity has been increased from 470.248 MWth to 497.676 MWth.

The generators will be configured as follows:

- Lon5 21 x 6.285 MWth Diesel Gas oil 100% previously permitted
- Lon6 5 x 5.714 MWth Diesel Gas oil 100% previously permitted
- Lon6 5 x 6.857 MWth Diesel Gas oil 100% previously permitted
- Lon6 5 x 5.714 MWth Diesel Gas oil 100% previously permitted
- Lon7 24 x 6.285 MWth Diesel Gas oil 100% previously permitted
- Lon8 14 x 6.857 MWth Diesel Gas oil 100% previously permitted
- Lon 7.5 4 x 6.857 MWth Diesel Gas oil 100%

We consider in reaching that decision we have considered 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

Testing regime

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 in 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%.

Air quality assessment

Dispersion modelling was undertaken using ADMS Version 6 and reported as an addendum to previous air dispersion modelling reports.

Reports submitted for the previous variation EPR/AP3903PD/V002

- May 2022 modelling report (AQ2) for 74 generators

- July 2022 modelling report (AQ3) for 74 generators including SCR

Three different operating scenarios, listed above, were considered within the applicant's assessment. Virtus Test 1 and 2 represent routine maintenance and Virtus Emergency 2, represents a power outage for 72 hours.

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 conclusions from reports AQ2 and AQ3, submitted with application EPR/AP3903PD/V002 have not changed.

The applicant's assessment is presented below.

Human health receptors

Virtus Test 1

- The hourly mean NO_2 PC is insignificant at all assessed human receptors.
- As SCR use requires a minimum exhaust temperature of approximately 320 ºC, it will not be operational during offload testing (i.e. Virtus Test 1). Therefore, there is no potential for NH_3 emissions and is scoped out for the Virtus Test 1 scenario.

Virtus Test 2

- The hourly mean NO_2 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 NH_3 PCs are insignificant compared to the relevant ES.
- There are no predicted exceedances of any of the US EPA Acute Exposure Guideline Levels (AEGLs) used for emergency response at the assessed human health receptors.

Virtus Emergency 2

- The highest hourly mean (100^{th} percentile) NO_2 prediction exceeds 200 $\mu g/m^3$ at some receptors, including residential properties.
- For 72 hours of emergency operations, exceedance of the hourly NO_2 ES is highly unlikely.
- The annual and hourly mean NH_3 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.

Ecological receptors

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:

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

Virtus Test 2

- 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 NH_3 PC at all ecological sites is insignificant, i.e., less than 1% of the critical level.

Virtus Emergency 2

- 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 $\mu g/m^3$.
- 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.

Environment Agency's assessment

The Environment Agency's Air Quality Modelling and Assessment Unit (AQMAU) audited the air dispersion modelling and report submitted with the variation application EPR/AP3903PD/V002 and EPR/AP3903PD/V004, 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 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 ES. 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 NH_3 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 NOx will be reduced.
- The assessment has found that the conclusion within the original assessment remains valid, with the addition of the 4 generators.

Operating hours

The Medium Combustion Plant (MCP) will be operated on limited hours, with permit tables S1.1 and S1.2 securing the necessary requirements.

New MCPs operating less than 500 hours per year as a three-year rolling average are exempt from meeting Medium Combustion Plant Directive (MCPD) emission limits, refer to Emission limits section of this document.

Permit conditions

Condition 2.3.3

The permit includes a maximum 500 hour 'emergency/standby operational limit' for any or all the plant producing on-site power under the limits of the combustion activity; and thereby emission limit values (ELVs) 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 associated but occurring only within the data centre itself.

Condition 4.2.2

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

Table S1.1 (Activities)

The table has been updated to include the additional engines and selective SCR abatement.

Table S1.2 Operating Techniques

The engines will be operated as per the previously permitted engines within London 7.

Table S1.2 has been updated to included:

- London 7.5 tanker offloading area and local drainage changes
- Testing, emissions performance and SCR abatement

Table S1.3 (Improvement programme)

An improvement condition (IC9) has been included to assess the performance of the selective catalytic reduction (SCR) abatement.

Table S3.1 Point source emissions to air – emission limits and monitoring requirements

Table S3.1 has been updated to include London 7.5 generators (emission points A75 to A78).

Table S3.3 Process monitoring requirements

Table S3.3 has been updated to include the new generators with reference to IC9.

Table S4.1 Reporting of monitoring data

Table S4.1 has been updated to include London 7.5 generators.

Noise

There are no changes significant changes to the impacts due to noise

Best Available Technique (BAT)

We accept that oil fired diesel generators are presently a commonly used technology for standby generators in data centres.

The new engines are emissions optimised and meet US EPA Tier 2 emissions certification and are fitted with SCR.

We agree with the operator that the engines are BAT for the proposed operation.

Fuel Storage and delivery

There are no changes to previously assessed fuel storage.

The tanker unloading area will be dished to a central drain with the total volume retention of 7620 litres and a two chamber SPEL Puraceptor Class 1 full retention interceptor (model P030/2CSC/M or similar), with automatic closure and 300 litre retention capacity within the chamber. The discharge from this will be tied into the existing drains.

Choice of fuel

There are no changes to the permitted fuel type.

Emission limits

Based on the operational requirements, we have not set any emission limits.

As there are no limits, permit condition 2.3.3 ‘The activities shall not operate for more than 500 hours per year’ has been included to restrict the hours of operation. The operator will be required to record operating hours and the number of runs for each of the generators.

Monitoring requirements

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 all MCPs, 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 all MCPs 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 generators operating at the installation, and the fact that we are not setting emission limits for carbon monoxide and NOx, we consider this monitoring can be carried out in line with web guide ‘Monitoring stack emissions: low risk MCPs and specified generators’ Published 23 July 2024 (formerly known as TGN M5).

We have also specified continuous process monitoring of levels of nitrogen oxides (NOx) from emission points A61-A78 because these generators are fitted

with SCR, hence we consider this monitoring necessary to ensure the effective operations of the abatement system, to prevent excessive ammonia slip and to dose the right amount of urea solution. Because this monitoring is not specified to assess compliance with emission limits, we are satisfied that it will not require certification to MCERTS standards.

Emissions to water

There will be no changes to the overall site drainage and surface water discharge point as a result of this variation, however, local drainage adjustments have been designed for the four new gen-sets. See Fuel storage and delivery section in the document.

Decision considerations

Confidential information

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

Identifying confidential information

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

Consultation

We did not consult with external organisations when we received the application. This is because the changes to the site are relatively minor and not change the overall risk to, those that have been previously assessed and consulted on.

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 1 of RGN 2 ‘Interpretation of Schedule 1’ and Appendix 2 of RGN2 ‘Defining the scope of the installation’.

The operator has provided the grid reference for the emission points from the MCPs.

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 combined net rated thermal input of the plant is greater than 50 MW. In accordance with the Environmental Permitting (EP) Regulations (England and Wales) 2016 the activity is a listed activity falling under:

Section 1.1 Part A1(a): Burning any fuel in an appliance with a rated thermal input of 50 or more megawatts.

The site

The operator has provided plans which we consider to be satisfactory.

The extent of the site of the facility including the discharge points.

The boundary has not changed.

The plan is included in the permit.

Management system

We are not aware of any reason to consider that the operator will not have the management system to enable them 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.

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 Air quality assessment section of this document.

We have not consulted Natural England; however, we sent the Stage 1 Habitats Regulations Assessment form for information only 14 February 2025.

The decision was taken in accordance with our guidance.

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.